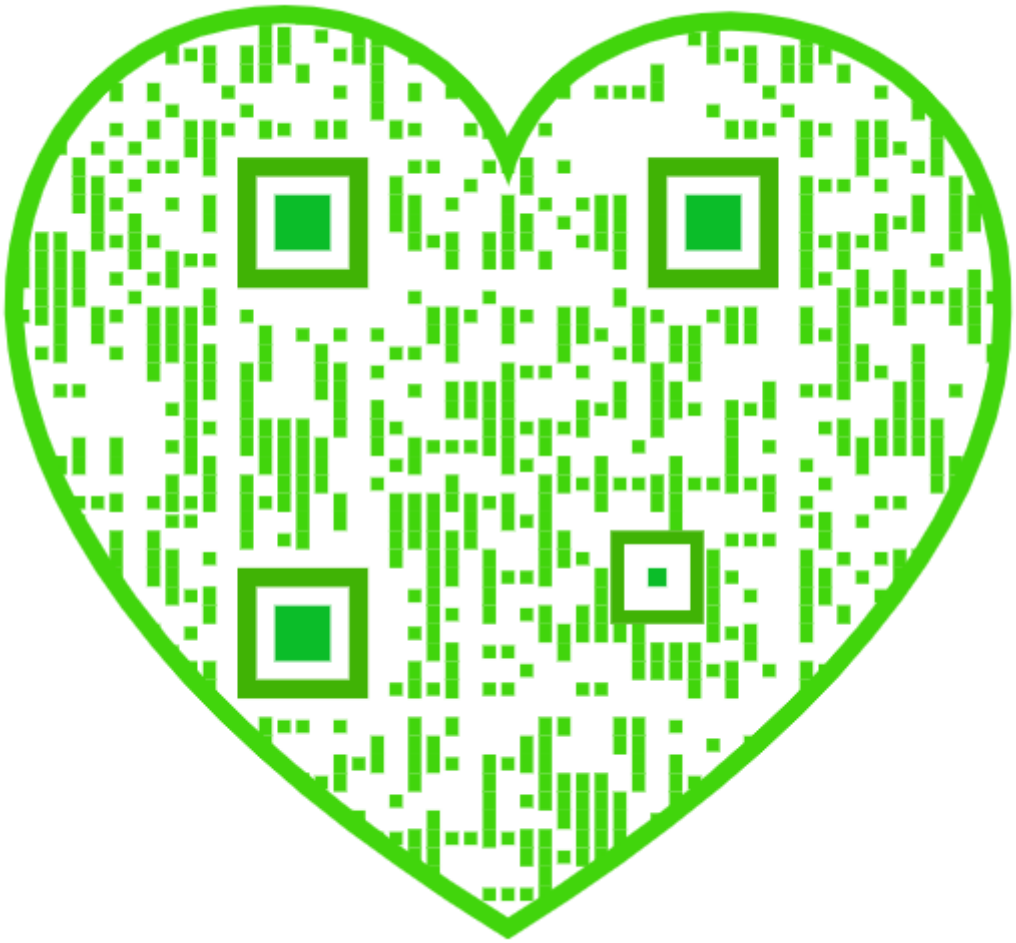

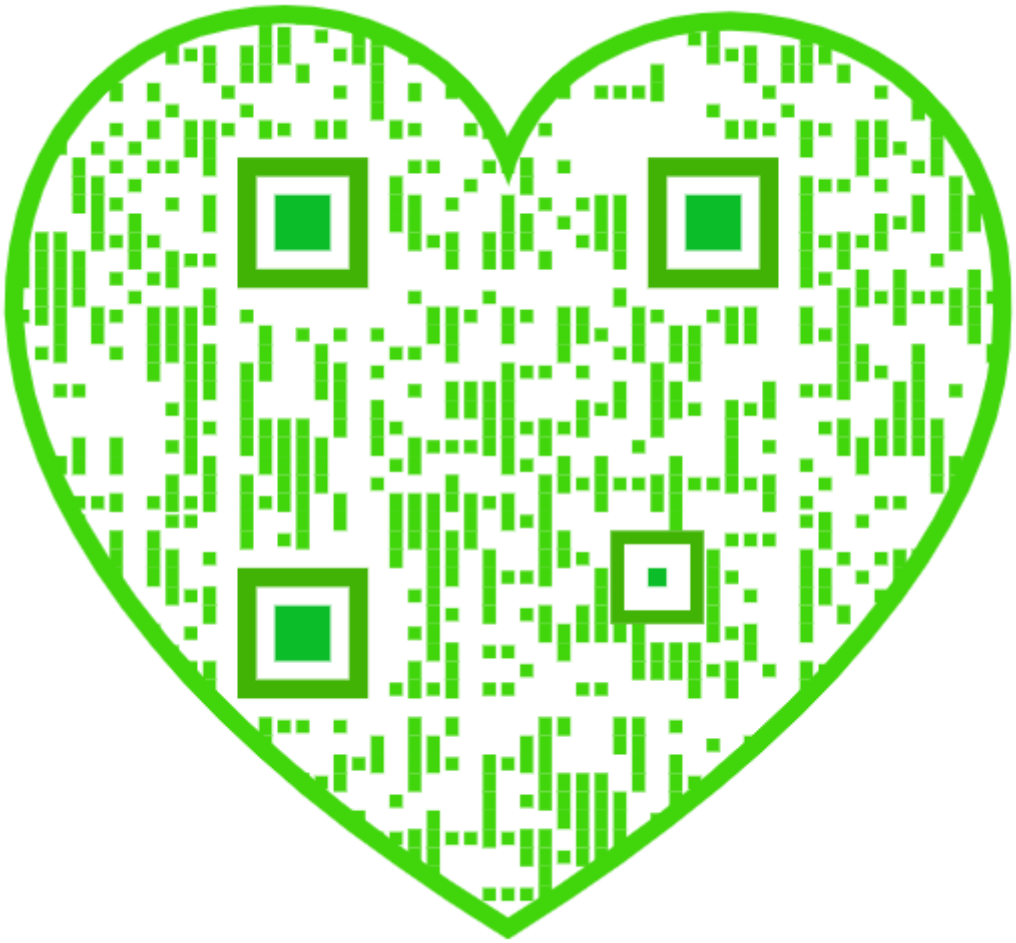

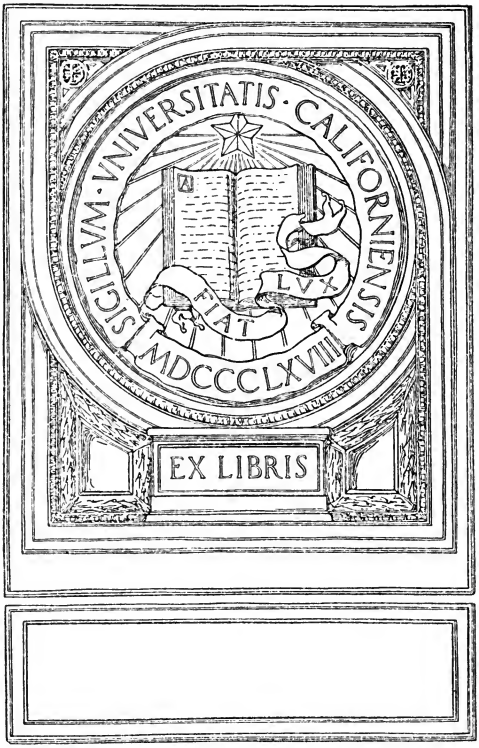
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SCIENCE OF TRAPPING

DESCRIBES THE FUR BEARING ANIMALS, THEIR NATURE, HABITS AND DISTRIBUTION, WITH PRACTICAL METHODS FOR THEIR CAPTURE.

By E. KREPS.

REVISED EDITION.

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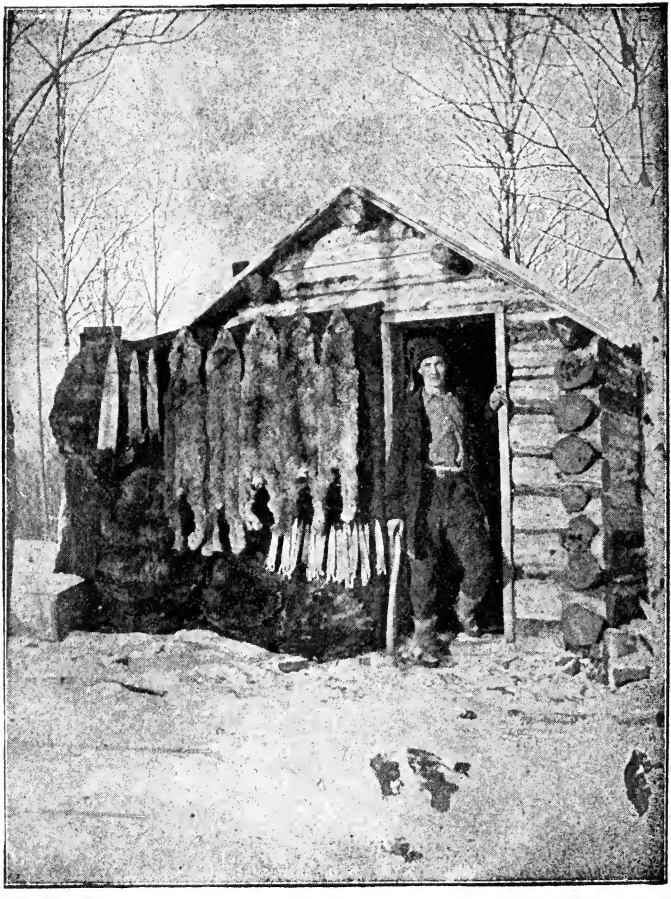

THE AUTHOR WITH A CATCH OF FURS.

INTRODUCTION.

AMONG the many outdoor occupations, trapping the furbearing animals is perhaps the most pleasant and in many instances is also very profitable.

Although trapping was one of the earliest industries of this country, the occupation has not passed away, along with the vanishing wilderness, for there is more trapping done today than at any time during the past. Scattered all over North America, in both the thickly settled portions and the more remote districts are thousands of trappers who are each season deriving both pleasure and profit from this unique calling.

Trapping in itself is an art. Many of the wild creatures are exceedingly wary and the trapper must match his reason against the instinct, the natural wariness and the acquired knowledge of the animals. This wariness alone has

saved some species of animals from extinction, and although man is superior to all brute life, such intelligent animals as the fox and the wolf frequently prove a match for the most expert of trappers.

In order to be successful, one must know the wild animals as a mother knows her child. He must also know and use the most practical methods of trapping, and it is my object to give in this work, the most successful trapping methods known.

These modes of trapping the fur-bearing animals have for the most part been learned from actual experience in various parts of the country, but I also give the methods of other successful trappers, knowing them to be as good as my own. I am personally acquainted with some of the most expert trappers in North America and have also followed the Indians over their trap lines and in this way have learned many things which to the white man are not generally known.

E. KREPS.

SCIENCE OF TRAPPING

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SCIENCE OF TRAPPING.

CHAPTER I.

THE TRAPPER'S ART

DURING past ages many of the wild creatures of the forest and stream were hunted and captured in various ways by the inhabitants of the wilderness,—the flesh of these animals being the principal food of many tribes of savages and the skins being used for clothing; but it was only after furs became a staple article of wearing apparel among civilized nations and the traders had learned of the profits to be made in the fur trade that wholesale and systematic trapping began.

For many years after the commencement of the fur trade in this country, the occupation of trapping was monopolized by the native inhabitants, but later some of the bolder of the white race pushed into the wilderness and learned the trapper's art.

To-day there are thousands of trappers scattered over the United States, Canada, Alaska and Mexico and the catching of wild animals for profit is no longer considered to be an occupa-

tion fitting only for the savage, for there is scarcely a farmer, ranchman or other person whose calling brings him close to nature who is not more or less interested in the fur-bearing animals. Wild animals are not all hunted for the sake of their furs. There are some such as the wolf, coyote, mountain lion and wild-cat which have become positive nuisances because of their destruction of stock and for such the government and in many cases the stockmen pay a bounty. The capture of wolves and coyotes especially has become a profitable business.

As to the profits to be derived from this occupation, there are professional trappers in the North, South and West whose catches amount to from five hundred to two thousand dollars or more each season, but the number who do as well as that is comparatively small. By far the greater number of trappers are those who follow other occupations and devote only their spare time to the capture of wild animals and they are for the most part farmers and country boys who in this way add considerable to their yearly income.

It is not at all necessary to go into the wilds in order to do successful trapping, and almost any farming section will be found to be a paying trapping ground. Indeed, the country man or boy will in most cases do far better in his own home district than he would by going into some

place with which he is not familiar even though the fur-bearing animals be more plentiful there than at home. In his own territory he will learn the haunts of each kind of fur-bearing animal, its route of travel, the dens, etc., and this knowledge will be of great value when the actual trapping commences.

Of course all of the various species of animals will not be found in any one section but where one is missing there will be some other found in fair numbers. Muskrats are most numerous as a rule in the settled parts of the country and wherever the muskrat is found there the mink is also. Skunks are found almost everywhere and the ease with which they may be captured makes the trapping of them a lucrative business. Foxes are found in most of the hilly sections and while they are not so easily captured, one can make a success of it if he gives the matter careful study and uses sufficient care in setting and attending the traps. In many parts of the South the raccoon is found in abundance as is also the opossum and the otter, the wild cat and other animals are found more sparingly in many parts of the country.

The trapper no matter where he is located is certain to meet with many hardships but it is a pleasant calling for all of that and there is a cer-

tain amount of pleasure in even the roughest experiences. Once one has followed trapping for a few seasons it is almost impossible to give up the wild, free life. The study of the habits of the wild creatures which is necessary if one wishes to become a successful trapper brings one into close touch with nature and the work is extremely fascinating.

In the early days before the steel trap came into general use, the deadfall and the snare were used almost exclusively for the capture of the fur-bearers, but at present when steel traps have reached a high state of perfection, are sold at prices which place them within the reach of all, they are preferred by most trappers and many of the most expert have discarded the wooden traps entirely. However, both the deadfall and the snare are good traps for certain animals and it is well to know how to make and use them for one may sometimes see a good place in which to place a trap but may not have a steel trap along. In such cases the knowledge of how to construct a practical deadfall will be of value. It is true that many of the fur-bearing animals are too cunning to be captured by such a contrivance but some of the most wary fall easy victims to the snare. Some of the most expert fox trappers use the snare in preference to the steel trap but the number is comparatively small.

Many styles of traps have been invented and some of the most promising styles were placed on the market but it is doubtful if any trap will ever be designed which will equal in popularity and general usefulness the old time jaw trap, commonly known as the "steel trap". These traps have been improved in many ways until at present they are almost perfect and are made in sizes and styles to meet all requirements and all conditions of trapping.

The jaw traps possess decided advantages over all other styles of steel or wooden traps. They are light and compact and may be moved from place to place without inconvenience to the trapper, will capture the most wary animals as well as the most stupid and will work perfectly under all conditions whether set in the water or on dry land, on the snow or on a log or stump or the side of a tree. They may be used with or without bait and if the proper size of trap is used and it is set in the right way it will capture almost any animal that comes that way. What other style of trap possesses all of these advantages?

As most of those who have never done any trapping know practically nothing regarding the use of traps I will outline briefly the methods usually employed for the capture of fur-bearing animals before proceeding farther.

Most of the animals which are caught in traps are decoyed by means of a bait,—something in the line of food which appeals to its appetite,—so placed that in attempting to reach it the animal places its foot in the trap. The most common way is by setting the trap in the entrance to some natural enclosure, such as a hollow log or stump, a hollow between trees, or a hole in the rocks, or under a stump the bait being placed in the enclosure beyond the trap. Failing to find a natural enclosure, the trapper constructs one, using such material as may be found on the spot. It is advisable as a rule to make as little disturbance as possible and to give the enclosure a natural appearance.

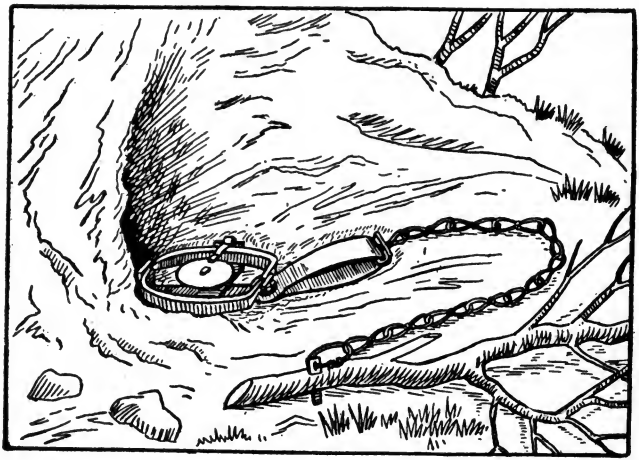
It sometimes happens that an animal can not be induced to approach a bait and in such cases the "blind set" is resorted to,—in other words the trap is set without bait in a trail where the animal travels or at the entrance of its den. Failing to find such a place the trapper carefully studies the route of the animal and selects a place where some natural or artificial obstruction will crowd it into a certain spot where he carefully sets his trap in such a way as to catch the animal the next time it comes along. These blind sets are as a rule very successful and many trappers use such methods exclusively.

In setting steel traps, great care is advised for the one who learns to do this most neatly, leaving everything natural is, as a rule, the most successful. One should always be certain to get the trap in the right position for to miss catching an animal not only means its loss for the time being but many of them will become wiser from such experiences and their capture will be more difficult afterwards. The trapper is wise also who gives sufficient attention to the fastening of the trap, thus reducing the animal's chances of escape after it is once caught.

To properly set a steel trap on dry land one should dig a "nest" for the trap, deep enough to allow the covering to be flush with the surroundings and just a little larger than, and of the same shape as the trap when set. This hollow should be lined with dry leaves or moss and the trap placed therein. To make the trap rest solidly so that there is no danger of it being tipped over also to make the jaws set level, the spring should be twisted around towards the jaw which is held down by the trigger or "dog". The trap should then be covered with some light, dry material in keeping with the surroundings, a few dead leaves or a sheet of paper being used first to prevent the covering from rolling under the pan and in that way prevent the trap from springing. Instead of doing this

some trappers place a bunch of cotton or dry moss under the pan but I do not think this advisable.

In all cases when setting traps at dens, on trails or at the entrances of enclosures, the trap should be so placed that the jaws will be length-



Trap Set in Correct Position at Entrance of Den.

wise of the animal's approach so that it will step between the jaws and not over one of them. If the setting is reversed the rising jaw will sometimes throw the animal's foot out of the trap.

There are various good methods of fasten-

ing and the proper one to use depends on the nature of the surrounding and the species of animal that one is setting for. Water animals should be drowned as quickly as possible after they are caught and in order to secure this result the "sliding pole" is used. This is simply an inclined pole leading into deep water and of a size that will enable the ring of the trap chain to travel easily its entire length. The most common way of using the sliding pole is to thrust the small end into the bed of the stream and fasten the other end securely to the bank. The pole should have a few branches near the small end to prevent the ring from sliding off. All water animals when caught in traps plunge into deep water immediately and the ring of the trap chain sliding down the pole makes it impossible for the captured animal to again regain the shore. In order to make this outfit more certain when setting for large animals such as otters and beavers, a stone of six or eight pounds should be tied firmly to the chain but not near enough to the trap to interfere with the action of the swivel.

In trapping for muskrats and mink the usual practice is to simply stake the trap the length of the chain into the deepest water available, the weight of the trap being sufficient to hold the animal under water.

For land animals the trap may be fastened to a "clog". This is simply a chunk of wood, a pole, brush or stone, the object being to hamper the animal in its movements and prevent it from getting a dead pull on the trap and chain. In fastening to the clog the staple may be used or the chain may be dropped through the ring so as to form a loop which is slipped over the clog, a few snags being left stand to prevent the chain from being drawn over the end. When setting for bears the ring is slipped over the clog,—a pole,—and fastened with a spike or wedge. Some trappers prefer to use a pronged iron drag and this is especially desirable when trapping for the more cunning animals such as the fox, coyote and wolf as the drag may be covered without leaving much sign. A stone may be used in the same manner by securing with wire to the end of the chain.

For the animals mentioned the traps are sometimes staked down solidly, the stake being driven out of sight but this gives the animal a dead pull and they will sometimes escape.

Such of the fur-bearers as are likely to escape by gnawing or twisting off a foot may sometimes be held securely by the use of the "spring pole" or better still, the "balance pole". The spring pole is a small springy sapling, trimmed of its branches and

planted firmly in the ground. The trap is fastened to the small end which is drawn down and held in that position by being hooked lightly under a crotched stake or a link of the chain may be hooked to a headless nail driven in the side of the stake. In theory this device works nicely

The Balance Pole.

but in practice it is not found to be perfect as the wood will lose its "spring" if kept bent for some time, especially in freezing weather. The balance pole is more faithful in its action. It is simply a long slender pole fastened in a crotch or tied to the side of a sapling, the trap being secured to the small end. It is so balanced

that the weight of the butt will not only lift the trap but the captured animal as well. It is fastened down in the same way as the spring pole and is released by the struggles of the animal.

In order to keep steel traps in perfect working order they should have a certain amount of attention. Repairs will be necessary at times and before the trapping season commences one should look them all over and see that they are in good condition. The triggers should be so adjusted that the pan will set level. All parts should work freely and the trap should neither spring too easily nor too hard. Rust on traps is not desirable and may be prevented to a great extent by boiling the traps occasionally in a solution of evergreen boughs, maple, willow or oak bark or walnut hulls. This will give the traps a blue-black color and they will not rust for a considerable length of time. New traps will not take the color very well but they should be boiled just the same to remove the oil also the varnish with which some manufacturers coat their traps. Some trappers smoke their traps before setting believing that the odor of the smoke will smother that of the metal. This however is not in my opinion a good idea as clean iron has no odor and the smell of smoke enables the animal to locate the trap, thus having just the opposite of the effect desired.

Others again, grease or oil the traps which is also bad for the same reason and another thing worth considering is the fact that a greased trap does not have as good a grip as one which has not been so treated. For my own part I would rather have my traps red with rust than to have them oiled, and if it is necessary to oil the joints of a stiff working trap, use some oil having practically no odor, never strong smelling substances such as kerosene.

As to the number of traps that one can handle, this depends on conditions. The kind of animals that one intends to trap for, the nature of the country, the method of setting and tending traps, the amount of fur to be found, etc., must all be considered. The muskrat trapper who is in a good location where traps may be set from a boat or in the marshes where muskrat houses are plentiful as on some parts of the Atlantic Coast, can easily handle from seventy-five to a hundred or more traps, looking at them once a day. The marten trappers of the Northwest sometimes use five or six hundred traps, but the traps are not set far apart and the trapper spends a number of days in going over the line. In the thickly settled districts there are comparatively few who use more than five or six dozen traps for they must be seen each day,

and for beginners from two to three dozen traps will be sufficient.

As before mentioned, steel traps are made in various sizes so that they may be used for all animals, from the smallest to the largest.

The No. 0 is the smallest size and is intended for such small animals as the pocket gopher, the rat and the weasel. If the spring is of fair strength as it is in the higher grades they may also be used for muskrat and marten. They are used extensively by the marten trappers of the Rocky Mountain region.

The No. 1 is known as the muskrat trap and is the best size for this animal. It is also used for mink, skunk, opossum and marten.

The No. 1½ is a very popular trap as its size and strength adapt it for general use. It is known as the mink trap, but the tendency among trappers is to use the 1½ for larger game and the No. 1 for mink. It is the best size for skunk, and if the spring is of fair strength, it will hold the fox, coon, fisher and lynx as well as all smaller animals.

The No. 2, which is the smallest size of the double spring style is known as the fox trap. It is also the best size for coon and is sometimes used for otter especially in the North but in my opinion it is too small for regular use on otter.

Next in order is the No. 3 which has been

named the otter trap, and it is the proper size to use for this animal. It is also used for catching the coyote, beaver, wild cat and lynx and is a very popular trap in the more remote sections of the country.

The No. 4 trap was originally intended for the capture of the beaver and is the proper size for that animal. The higher grades of this are also used to a great extent for trapping the timber wolf, also for otter and coyote.

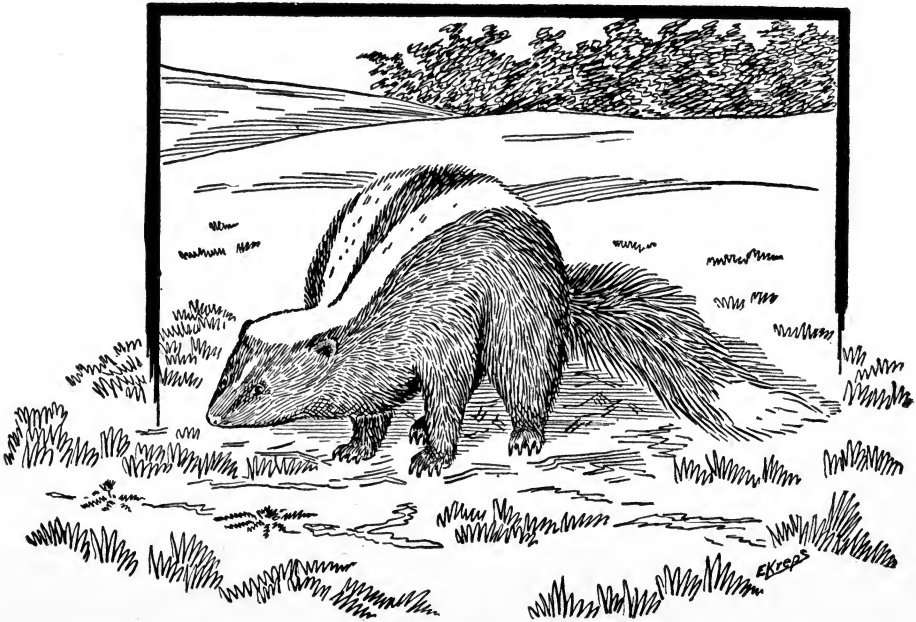
The best trap for wolves, however, is the 4½ which was designed especially for trapping these animals. It is considerably heavier than the No. 4 and is fitted with a longer chain and a pronged drag. This size is also used for taking the cougar or mountain lion.

The bear traps are known as the No. 50, the No. 5 and the No. 6. The No. 50 is the smallest but is sufficiently strong for the black bear. For those who prefer a larger trap for this animal, the No. 5 will prove satisfactory, and it will also hold the grizzly, but is rather small for that animal. The size best adapted to the capture of the larger varieties of bears is the No. 6, which will hold almost any living animal.

In addition to the traps mentioned, there are a number of special styles designed to meet the demand from those trappers who desire special traps for some certain animals. Among

these may be mentioned the clutch traps, the single spring otter traps and the traps with offset jaws.

It should be understood that in writing the foregoing description of traps, I had in mind the higher grades only. In the following chapters devoted to the capture of the various animals, the proper sizes and brands of traps to use will be given.



The Skunk.

CHAPTER II.

THE SKUNK.

THE skunk is an animal of the weasel family, and is found throughout the United States and the southern parts of Canada. A full grown specimen will usually measure sixteen or eighteen inches, from the nose to the root of the tail, which is about twelve or fourteen inches long and quite bushy. The color is a glossy black, with usually, a white V-shaped stripe extending from the top of the head to about half the length of the back. Often, this stripe is quite broad and extends the length of the body, while in others the stripe is missing, there being only a white spot on the head, and a white tip to the tail; this latter marking being found on all specimens. In some of the Pacific coast States, a variety is found having only a single white stripe running the entire length of the back. There is also a small species found in parts of the Mississippi valley, which has white spots, instead of stripes. This animal is known to the fur trade as well as the trappers, as the "civet cat", although the true civet cat is quite a different animal.

The skunk has become quite famous among country folks, because of its powerful scent, which is found in two glands near the root of the tail, which the animal can eject at will. This scent is perhaps the most powerful and offensive of all odors, and the use of it is the skunk's only means of defending itself against enemies.

The skunk makes its den in the ground, usually along a gravelly hill-side, and it sometimes makes use of the den of the woodchuck. In thickly settled countries where the dens have been destroyed by hunters, they often make their homes under barns and out-buildings, and even under dwelling houses, much to the discomfort of the inmates.

The skunk is a nocturnal animal, searching for food only at night and remaining in its den during the day. During the cold part of the winter, they remain in their dens, coming out only on warm nights, until after the middle of February, when their mating season commences, and the males travel, at this time in almost all kinds of weather.

The young are born in April and May, and there are usually from four to ten in a litter, though occasionally there will be a larger number.

Their food consists mostly of insects, grubs,

young birds and eggs, and when they have an opportunity to do so, they will kill and eat poultry, etc. They are also fond of carrion, and even the flesh of their own kind.

In the northern states the skunk becomes prime about the last week in October, while in the extreme south they are probably not prime until the last week in November. In the north they commence to shed their fur about the tenth or fifteenth of March, while in the south they shed still earlier. During very cold weather, when the skunks have been confined to their dens for a considerable length of time, the warmth of the dens has a tendency to injure the fur. The males also fight among themselves and their fur is often injured in this way. At other times the fur is spoiled somewhat, because of too small an entrance to the den, the fur having a rubbed or woolly appearance. It is the fine black skins taken when in the best condition, that are the most valuable. Skunks are, perhaps, found in the greatest numbers in the eastern states, and the trappers from that section, make more money from skunks than from any other animal.

In winter, one may track them to their dens, and if the den is a good one, may find any number of skunks, up to a dozen, in the same den. It is a common practice to dig the den open and

kill all the inmates, but as this method means the destruction of a good den, it is not advisable to do so. The best way is to trap them, as in this way the den will not be injured, and it is almost certain that you will find skunks in the same den each season. Such a den is worth money to the trapper. The oil of the skunk, if rendered carefully, without burning, is useful, and is often used by country people as a remedy for croup.

The most common method of trapping the skunk is to set the trap in the entrance of the den, without bait, but where there are many dens, or where the dens are hard to find, it is best to use bait. In setting the trap in a den, it should be set just inside the entrance, unless the mouth of the den is small, when it should be set just outside. The trap should be set with the jaws lengthwise of the hole, so that the skunk steps between the jaws, and not over them, as by stepping over the jaw the foot is likely to be thrown out of the trap, by the jaw, as the trap springs. This rule also applies to all traps set in dens or enclosures of any kind. The common way of fastening is to stake the trap or fasten to a clog, but the balance pole is better.

No great care is necessary in covering the trap, as the skunk is not suspicious, but it is always best to use care, especially in setting

baited traps, as one never knows what animal may come along. On one occasion I caught a fox in a trap set for skunk.

It is a good idea also, when trapping at dens, to put a small scrap of bait inside of the den, as many skunks that are traveling about, only look in and turn away, and if the trap is set inside, will not be caught. If, however, there is a small bait inside the den, the skunk will attempt to get it, and will be caught in the trap.

The traps most used for skunks are the No. 1 and No. 1½. There are also some special traps manufactured for these animals, having double jaws or webbed jaws, to prevent the animal gnawing off its foot.

Traps set for skunk should be visited every day, as otherwise the captured animals are likely to escape. They seem to struggle more on dark stormy nights, and during such weather, one should get around to his traps as early as possible in the morning.

Sometimes one can find a well-defined trail leading away from the mouth of the den. In such a case, several traps may be set in the trail, thus doubling or trebling the chance for a catch.

When good dens cannot be found, dig a hole under an old stump, and place a bait inside, setting the trap directly in front of the hole and cover with dry dirt. Sprinkle some scent about,

on the stump and ground; use care in setting as you are likely to catch a fox, providing the trap is carefully set and covered, and the stake driven out of sight. For bait use tainted meat of almost any kind.

Another good way is to find a spot of sandy ground, and set the trap in a small hole, covering with sand. Cut the bait into small pieces and scatter it all around the trap, also, if you have it, sprinkle some scent around. The trap may be fastened to a brush drag, and the brush set up to look as though it were growing there.

If you can find a tree or stump with two spreading roots, set the trap between these roots and fasten the bait on the side of the tree, about ten inches above the trap.

Still another way is to make a small pen of old, rotten wood, stones or stakes, setting the trap in the entrance, and placing the bait in the pen beyond the trap.

Any natural enclosure, such as a hollow log, a hole in the bank, or in a wall or pile of stones, makes a good place in which to set a trap.

Skunks may also be taken in box traps, deadfalls and snares, and they seldom become scented when caught in such traps.

For bait, the following are all good: muskrat, skunk, chicken, birds of any kind, rabbit, squirrel, mice, rotten eggs or fish—tainted bait

is always to be preferred for skunks, fresh bait being second choice.

To make a good decoy, take one-half dozen rotten eggs, and the scent of one skunk, and mix thoroughly. A mixture of the male and female scent is probably best. Many of the decoys recommended for the fox are also good for skunk. The scent of the skunk itself, is one of the very best to use.

Most trappers object to having the scent of skunks on their clothing and for this reason I give the following methods for killing the captured animals, so that they will not throw their scent. If the trap is staked, or fastened to a clog, cut a club about four or five feet long, and approach the animal very slowly, using care not to make any quick movements. If the skunk raises its tail, as though it intended to throw its scent, stop, and stand perfectly still until it drops its tail again, when you can go nearer. In this way if you are careful, you can easily get within striking distance, when you should deliver a good smashing blow across the back. If the back is broken, the muscles which operate the scent glands will be paralyzed, and there will be absolutely no danger of getting a charge of perfumery.

Some trappers fasten their traps to the end of a ten or twelve foot pole, and by approaching

carefully, can pick up the pole, when by going slowly, the skunk may be led to the nearest water where it may be drowned. Lead the skunk into shallow water, gradually working it into deeper, holding its head under until nearly drowned, then let it have a little air, — just a breath, and push it under again, keeping it there until its struggles cease. If the animal is caught by a front foot, it may be carried to the water, as a skunk can seldom throw its scent if lifted off the ground, and not allowed to touch anything with the hind feet or tail.

Another method is to cut the animal's throat with a small, very sharp, pointed knife blade, attached to the end of a ten foot jointed pole. Approach the animal carefully and place the point of the knife against the side of the animal's neck, just over the jugular vein. Push steadily against the knife; as soon as the blood flows freely, move away and allow the animal to die.

Perhaps the quickest method is to shoot the skunk in the center of the back, with a 22 caliber rifle or pistol. This breaks the back killing the animal almost instantly, and there will be no scent whatever.

If the trap is fastened to a balance pole you can kill the animal by a blow across the back. Never shoot them in the head, or strike the head

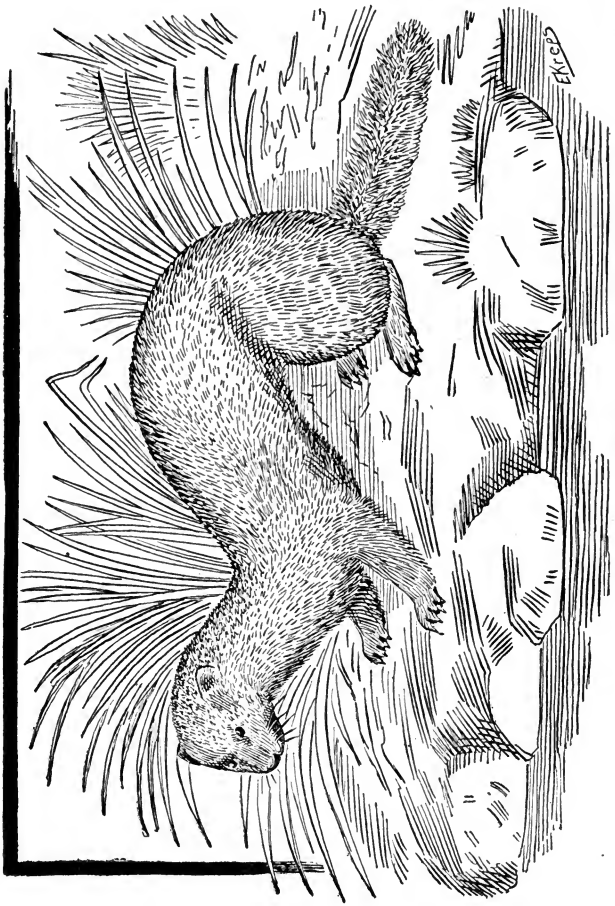
with a club, as they are certain to throw their scent if killed in this way.

If the fur of the skunk has become scented, I use the following method for removing the scent: Build a fire and throw an armful of evergreen boughs on it so as to make a dense smoke. Hold the scented animal in the smoke for about five minutes, using care to keep it away from the fire or the heat will curl the hair. After the skunk is skinned hang the skin in an airy place for a few days, when there will be practically no smell left.

Before skinning or handling the skunk, rub your hands with some kind of grease. After the animal is skinned, wash your hands well, using soap and hot water; there will be no scent remaining on the hands. Benzine or gasoline will also remove the scent from the hands or clothing. Cider vinegar is also said to be good. If the clothing is buried over night in damp ground. the scent will usually draw out.

The track of the skunk is peculiar and is not likely to be mistaken for that of some other animal. Although a member of the weasel family, it does not travel by a series of jumps as does the weasel, mink, marten, etc., but maintains a steady walk, and the foot-prints will be an even distance apart and spread considerably so as to

make a wide trail. The length of step is about five inches and the footprints will measure from one to one and a half inches in length, according to the size of the animal.



The Mink.

CHAPTER III.

THE MINK.

THE mink is a small carnivorous animal, belonging to the weasel family. It is found throughout the United States and the greater part of Canada and Alaska. A distinct species is also found in Europe and Asia. In North America there appears to be several varieties, varying considerably in size and color. A large, light-colored variety is found in the country drained by the Mississippi River and its branches, and also in the prairie country of Canada. This variety sometimes reaches the weight of four pounds, or even more, and the skin, when properly stretched, will sometimes measure thirty-six or thirty-eight inches from tip to tip. A smaller and darker variety is found in the Eastern States and the Eastern parts of Canada and Lake Superior regions, and a still smaller and very dark colored mink is found in Northern Maine and parts of New Brunswick. A small, light colored variety is found on the Pacific coast.

The mink has a long, slender body, a small head, and rather short legs. The tail is usually

about eight inches long and is quite bushy. The fur is thick, fine and glossy, and the color varies from a very light brown to very dark. The usual color is dark brown, the fur on the tail being darker than that on the body.

The mating season commences about the last week in February and ends about the middle of March. The young are born in April, there being from four to six in a litter.

The mink is not an amphibious animal, but it is found only along the streams and watercourses, from which it obtains a large part of its food. It is a great rambler, traveling long distances along the streams and lakes, and always following the same route. When on these trips it explores the drifts and log-jams, holes in the bank, hollow logs, etc., which habit is taken advantage of by the trapper.

The fur of the mink is at its best during the months of November, December and January, in the north; while in the extreme south, they are only number one, during December and January. In February, the fur commences to fade, and they are not worth so much. The dark colored skins command the best prices.

The food of the mink consists of fish, frogs, birds, squirrels, mice, rabbits, muskrats, etc., all of which are good for bait. They are also very fond of poultry.

The traps most used for mink are the Nos. 1 and 1½. The webbed jaw and the double jaw traps are especially desirable for mink, as when caught in these traps, they cannot escape by gnawing off the foot.

There are probably more methods used in trapping the mink than in trapping any other animal. In localities where they take bait well, the usual plan is to set the trap in the entrance to a natural or artificial enclosure, on the bank of the stream, placing a bait on the inside of the enclosure. The trap should be nested down, and covered with some light material in keeping with the surroundings. The trap may be fastened to a light clog or a balance pole, or if very close to the water, to a sliding pole. The bait should be strictly fresh. Some good scent may be used if desired. Hollow logs and holes in drifts and under stumps make good places for sets. Some trappers do not set in an enclosure, but hang the bait about eighteen inches above the trap. I do not, however, consider this a satisfactory method. When an artificial enclosure is used, it should be roofed over with bark, or evergreen boughs to protect that trap from the snow.

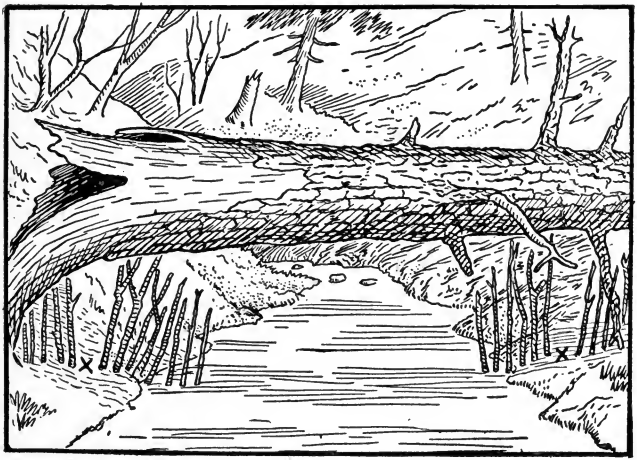
For fall trapping, many prefer to set traps in the water. The following method is one of the best for a water set: find a steep bank where

the water is shallow, and runs smoothly and rapidly, make a hole in the bank, on a level with the water, making the hole about ten inches deep and about four inches in diameter. Put a piece of fresh bait back in the hole, fastening with a small stick, and set the trap in the water at the mouth of the hole. Stake the trap the full length of the chain into the water and cover with mud or water-soaked leaves.

Along the streams where little sand-bars lead out into the water select a place on one of these bars, where the water is only an inch or two in depth, set the trap under the water, close to the edge of the stream. Fix a small fish on the point of the stick, out in the stream a foot from the trap, pushing the stick down until the bait rests partly under water. Stake the trap so that the catch will drown. This is a very successful set and requires but little time and trouble to make.

In some localities the mink do not take bait well, in which case, blind sets — traps without bait must be depended upon. In the fall while the water is still open, find a high bank where the water leads off fairly deep, leaving only a very narrow strip of shallow water, at the foot of the bank. Set the trap in the edge of the water and stake full length of the chain into the stream. Place a couple of water-soaked leaves

on the trap, and drop a few pinches of mud on them to hold them in place. The steep bank on one side and the deep water on the other, will guide the mink into the trap. If, however, the shallow water extends out some distance from the bank, take a chunk of water-soaked wood,



Mink Set Under Log.
XX Shows Positions of Traps.

and stand it in the water, just beyond the trap, leaving the top rest against the bank. This will leave only a narrow passage over the trap, and you may be pretty sure of catching your mink. A similar set should be made on the opposite side

of the stream, if conditions are favorable. This is a very good method for use in the south.

After streams are frozen, a different plan must be adopted. In such cases if you can find a jam or drift extending across the stream, find an opening, leading through this drift, close to the bank, and set the trap in this opening, covering with fine, drift dirt. In case you cannot find a suitable passage, make one and stop up all other holes. A little scent of the right kind may be used here to good advantage.

The illustration shows two traps set under an old log, spanning the stream. The log protects the traps from rain or snow, and a glance at the cut will show that it would be practically impossible for a mink to pass along the stream without being caught. The same set is good for the raccoon. If the stream is frozen fill the opening, under the log, with old, dead brush, so that there is no chance for the mink to pass, except over the traps.

Another good method for the wary mink is as follows: find a high, steep bank along the stream; if it overhangs, so much the better, and about two feet above the water, make a hole about four inches in diameter, and a foot or more deep. Leave the dirt that you dig out, rest directly in front of the hole, and set the trap in this dirt, covering with same. Pack dry moss

around the jaws and cover the trap first with a sheet of paper, finishing with a thin layer of dirt. Put some good mink scent in the hole; the musk of the mink itself is best for this set. If the traps can be visited every day, it is a good plan to stake the trap, so that the mink will roll around over the ground, and the next one will be more easily caught.

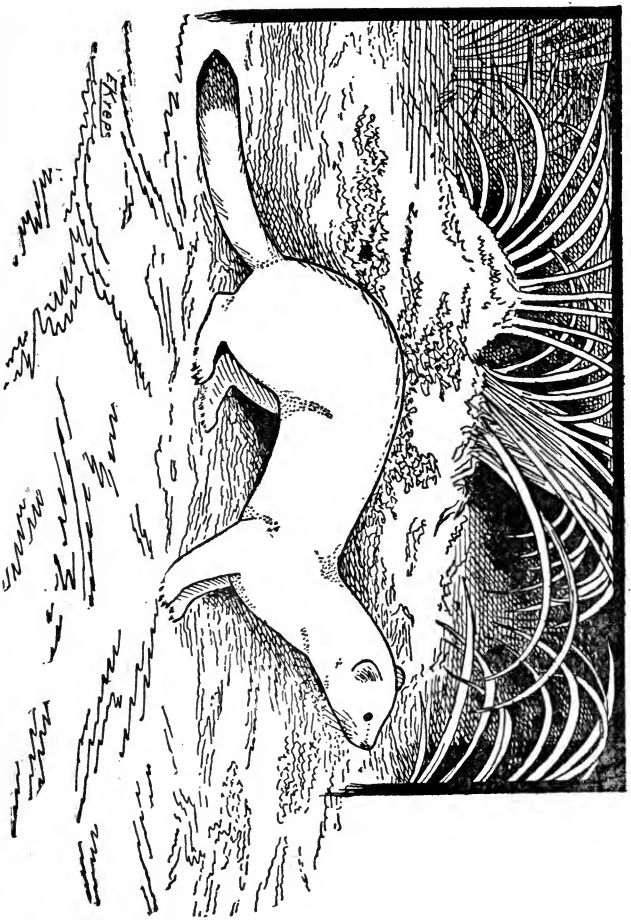
Where mink travel around a lake, go to the outlet and lay a hollow log across the stream, just where the water leaves the lake. Set a trap in this log, covering with fine, rotten wood, and every mink that travels around the lake, will attempt to run through the log, and will be caught. If you cannot find a hollow log near at hand, build a covered passage-way of poles and chunks, and set your trap in this passage.

Mink may also be taken in box traps and deadfalls.

Scents are much used and there are some few which have proved attractive. Fish oil is one of the most common scents for mink and other animals. It is made by taking fish of almost any kind, cutting them into small pieces, and putting in a wide mouthed bottle. Let stand in a warm place, loosely covered, until the fish are thoroughly rotted, and in a liquid state; this scent may be used alone or combined with others.

If a female mink can be caught, during the mating season, remove the generative organs, and place them in a bottle, adding about two ounces of fish oil and all of the mink musk you can get. This is undoubtedly the best scent ever devised. It should be used without bait.

In traveling, the mink goes "the jump" and its foot-prints are always in pairs, the space between each set being from eighteen to twenty-four inches. The footprints will measure from one to one and one-fourth inches in length, with one always somewhat in advance of the other.



The White Weasel.

CHAPTER IV.

THE WEASEL

THE weasel is the smallest of all carnivorous animals and the various species and varieties are distributed over the greater portion of northern Asia, Europe and North America. In this country alone naturalists recognize some twenty species and sub-species, most of which are found in Canada and Alaska, also the northern and western states. Of these it is only the northern varieties, those which become white in winter that are of importance to the trapper.

The ermine of Europe is a species of weasel, and the American white weasel is sometimes called the ermine, its fur being used to imitate the fur of that animal.

The change of color in the fur of this animal is not understood by naturalists. It occurs only in the most northern portions of its range and it is not known whether the animal really sheds its brown summer coat when the cold weather approaches or whether the fur bleaches, but it is certain that the change occurs in some

way, the fur becoming white in the fall and changing to brown again in spring.

The smallest variety of the weasel is found in northwestern Canada and Alaska and with it the black tip of the tail so characteristic of the weasel is missing. Very large weasels are secured in the northern part of Maine, but it is said that the finest skins are obtained in Nova Scotia and Newfoundland.

The weasel from many sections have a peculiar, sulphury yellow cast to the fur, especially on the hind-quarters, and of many of these stained skins only the black tip of the tail is of value. What causes the stain is not known, neither is there any known method for removing it. One fur buyer states that about seven out of every ten skins received, show this yellow stain and are of little value.

The weasel is one of the most blood-thirsty of animals and is very courageous. It is a terror to rats, mice, rabbits, partridges and poultry. It will kill for the love of slaughter, even when not hungry, and I have known a single animal to kill more than thirty chickens in a night, sucking only a little of the blood from each.

On one occasion I knew a farmer who had turned a drove of fair-sized pigs into a pasture, and one day, hearing a wild squealing over along the pasture fence, went to investigate. He

found the entire drove of porkers running along the fence and squealing from terror and following them was a little brown weasel.

Curiosity is highly developed in the weasel. Many times I have seen them in my camp at night and if I remained perfectly quiet they would approach to within a few feet and stand upright on their hind legs to get a good view. At the least movement, however, they would disappear only to return a minute later.

As before mentioned the weasel is a bloodthirsty creature, and when it finds some food that is to its liking it can scarcely be driven away. On various occasions I have found them attempting to remove the bait from my traps and such times I would adjust the trap so as to be very easily sprung, and then step aside and wait for the animal to be caught.

The weasel has a sharp eye and a keen nose. While trapping in the North I would always keep on hand a supply of snared rabbits for use as bait, and often weasels would come into the camp at night, attracted by the bait, and it is interesting to note how quickly they could scent out the freshest rabbit in the pile and by biting into its ears would attempt to drag it away. Quite often they were able to move a fair sized rabbit. I usually kept a trap setting in my

camp and in this way in one season caught fifteen weasels in one camp.

I have never learned anything regarding the breeding habits of the weasel, but judging from the large numbers of these animals found in favorable localities I would say that they are very prolific.

For trapping this animal I recommend the No. 1½ trap and prefer a trap that is loosely hinged and springs easily, such as the Victor. Any trap will hold a weasel but when caught in the smaller sizes they quite often double up about the jaws and when they die and freeze in that position it is difficult to remove them from the trap. With the 1½ they are always caught over the body and there is little trouble from that source. As the animal is so very light in weight it is necessary that the trap springs very easily. There are various styles of rat traps on the market which make excellent weasel traps, but as one never knows what animal may happen along, I prefer to use the steel trap.

My method of setting is to place the trap inside of a small enclosure of chunks of wood, bark, sticks or whatever is most convenient. No covering is needed but when setting on the snow I make a bed of evergreen boughs for the trap to rest on. Rotten wood will answer just as

well. I fasten the bait with a stick just back of the trap so that the weasel will be obliged to stand on the trap when attempting to remove the bait, for it should be remembered that they will never eat any food where they find it if able to move it away. Fasten the trap securely for some larger animal is likely to be caught. I do not place the traps far apart, where tracks are seen in fair numbers, and I drag a fresh killed rabbit from set to set, splitting it open with a knife so as to leave a bloody trail. Any weasel that strikes the trail is sure to follow it.

For bait I prefer rabbit to anything else as it contains more blood than other baits and fresh blood is the only scent that I know of which will attract the weasel.

In order to obtain good prices it is necessary that the fur be kept clean and I use a small cloth bag in which to carry my catch.

The tracks of the weasel resemble those of the mink but are considerably smaller. The average length of jump is perhaps about eighteen inches.

The Marten.

CHAPTER V.

THE MARTEN.

THE marten is a carnivorous animal belonging to the same family as the weasel. The principal species are the pine marten of North America, the beech or stone marten of northern Europe, the sable of Russia and Siberia and the Japanese sable. Naturalists usually class the fisher with the martens, also. The Russian sable is the finest of the martens, the pine marten of Labrador being next in value. The pine marten is found throughout the timbered regions of Canada and Alaska, also in the mountainous districts of the western states. A few are still found in northern Minnesota, Wisconsin, Michigan, New York, Vermont, New Hampshire and Maine.

In size the marten is about the same as the mink of the North and East, being somewhat lighter in the body, but the longer fur causes it to appear fully as large. It has longer legs than the mink, and the feet are larger and heavily furred. The tail is thick and bushy, the ears and eyes, large and the muzzle is more

pointed than that of the mink. The fur is very fine and soft, the color varying from a rich yellow to almost black. The fur of the tail is darker than that of the body, and the face, lighter. The ears, on the edges, are greyish white and there is always a yellow or orange spot on the throat.

In the more southern portions of their range, the martens are quite pale. The finest and darkest skins come from Labrador and the country east and south of Hudson Bay, also from northern British Columbia and the interior of Alaska and the Yukon province. The marten is strictly an animal of the woods, being found only in the heavily timbered country. Their favorite haunts are in the rough, broken country, where the timber is of various kinds. They feed on rabbits, squirrels, mice, birds and eggs and probably have no trouble in obtaining a sufficient amount of food, but unlike the mink and the weasel, they never kill more than is needed to supply their wants.

The young are usually born in April, and there are from three to five at a birth. Just where they make their dens I cannot say. Some writers say they live in hollow trees, while others assert that they live in holes in the rocks or ground. I should say that the latter idea is most likely to be correct, at least as regards the

marten of the far north, as in that part of the country, hollow trees are few and far between. One peculiarity regarding the martens is the fact that they occasionally disappear from a locality in which they were formerly numerous. The common supposition is that they migrate to new feeding grounds when food becomes scarce.

The marten travels mostly in the gullies and depressions on the mountains and hills. As they usually follow the same route, when one sees their tracks in such a place, he can be reasonably sure, if he sets his trap there, that he will make a catch. They are not shy or suspicious and are easily caught. In many ways, marten trapping is the most pleasant as well as the most profitable kind of trapping. As they are found only in the timbered country, the trapper does not feel the storms like he would in an open country. They are easily caught, light to carry and easily skinned. Moreover, they are a very valuable fur and if one is in a good locality, he will make a large catch in a season. They usually become prime about the 15th of October and remain in good condition until the last of March.

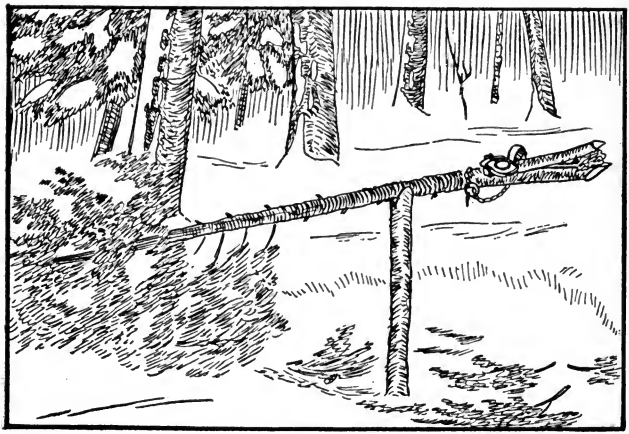
In countries where the snow does not fall too deep, the traps are set in small enclosures, the same as for the mink. If there is snow on

the ground, I set my traps as follows. With my snowshoes, I tramp the snow down solid, at the foot of a tree, and build a small pen of stakes, or chunks split from an old stump. The stakes or chunks, are arranged so as to form the sides of the pen and the sides are placed about six or seven inches apart, the tree forming the back of the pen. I roof the pen with evergreen boughs, to protect the trap from the falling snow. It is a good idea to leave a couple of boughs hang down over the mouth of the pen so as to hide the bait from the birds, and also to prevent the rabbits from entering the pen. I set the trap on a bed of boughs, just inside of the pen, and cover lightly with tips of evergreen. The bait is placed on a stick behind the trap. I fasten the trap to a toggle, but if only marten is expected, the trap may be fastened in almost any way, as they seldom escape. It is also a good idea to bend a small twig and place it under the pan of the trap, to prevent it from being sprung by birds, squirrels and weasels.

For bait, rabbit, partridge, squirrel, fish, small birds or meat of almost any kind is good. The Indians sometimes smoke-cure salmon, pickerel, or white fish, for marten bait, and other trappers use putrefied salmon roe, but the majority prefer to use fresh bait. Some trappers advise dragging a piece of fresh, bloody

meat along the line, to lead the marten to the trap.

Another very good method is the following: Find a small spruce, about three inches in diameter and cut the tree about two feet above the snow, leaving the top of the stump V shape.



A Marten Set.

Draw the tree forward and lay it over the stump, so that the butt of the tree will be three or three and a half feet above the snow. Now, about a foot back from the end, flatten off a place for the trap and set the trap on the pole. Tie the trap fast with a light string and loop the chain around the tree. Split the butt of the

tree, and fasten the bait in the split. This is a very good set, possessing advantages over most methods. The birds can not eat the bait, the trap is not bothered by weasels or rabbits, the marten must stand on the trap when trying to get the bait, and when caught, falls off the pole and can not get back.

In the mountains, where the snow falls deep, the traps are set on the trees, five or six feet above the snow. The most common way, is to make two cuts in the tree with an axe, and drive in two wooden pegs, about five inches apart. Set the trap and place it on the pegs, one peg passing through the bow of the spring, the other between the jaws and the bottom of the trap. Draw the chain around the tree and staple solidly. The bait is pinned to the tree, about a foot above the trap. A bunch of boughs may be placed over the bait to hide it from the birds.

If desired, a notch may be cut in the tree and a trap set in the notch. The notch should be about four inches deep and about twelve inches from top to bottom. Cut the bottom smooth, so the trap will set solid and fasten the bait in the top of the notch. Staple the trap to the tree. If desired, you can lean a pole against the tree for the marten to run up on, but this is not necessary.

The trapper should always be on the look-out for places in which the trap may be set without much labor. Sometimes a tree can be found, with a hollow in one side and this makes a good place for a set. Lean a pole against the tree, with one end resting in the hollow, set a trap on the pole and place a bait in the cavity above the trap. At other times a cavity may be made in the side of a rotten stub and a trap set in the same way. The traps recommended for marten are the No. 1 of any make, but the No. 0 Newhouse is much used. If there are fishers, lynx and other large animals about, it is best to use a No. 1½ trap. Deadfalls are also used and they may be built on the ground or snow, or on the top of a stump, or the side of a tree. The track of the marten resembles that of the mink, except that it is a trifle larger and the footprint wider in proportion to the length. The toes do not make as clear a print as do those of the mink, the feet being more heavily furred.

The Fisher.

CHAPTER VI.

THE FISHER.

THE fisher belongs to the weasel family and is classed by naturalists among the martens, under the name of Pennant's Marten. To the trappers, however, it is best known as the fisher, and in the Eastern States and Eastern Canada, as the "black cat". It is strictly a North American animal, being found scattered over a large part of Canada and Alaska, and also in California and other parts of the Pacific Coast, Northern Michigan, the Adirondack mountains of New York, the White mountains of New Hampshire and in Northern Maine.

In general appearance, the fisher resembles both the marten and the wolverine, but is larger than the former and smaller than the latter. Compared with the marten, the ears are smaller and more rounded, the tail longer and the animal is far more stoutly built. An average, full size fisher, will measure two feet from the nose to the root of the tail and will weigh from ten to fifteen pounds. The tail is peculiar, and is

the most valuable part of the skin. It measures, usually, about sixteen inches in length, is heavily furred, thick at the base, and tapers to a point. The color of the fur varies, some specimens being very pale and others almost black. The general color is a yellowish grey on the face, head and neck, light brown on the back, dark brown on the hind-quarters and the tail and legs, a brownish black. The under parts are darker than the back. The fur is fairly fine and soft, though not nearly as fine as that of the marten.

For its size, the fisher is an exceedingly powerful animal, and is rather hard to hold in a trap, as it will struggle as long as life lasts. The animal possesses a musk, having a peculiar, rank odor, which it ejects when alarmed. The food of the fisher consists principally of rabbits, partridges and other small animals and birds, but it will scarcely refuse anything in the line of flesh, occasionally eating mink, weasel, etc., out of traps. It also preys on raccoons in the parts of its range where those animals are found and sometimes kills and eats the porcupine. Neither is it a strictly carnivorous animal, as it feeds largely on the berries of the mountain ash and in seasons when these berries are plentiful, the fisher does not take bait well. At such

times the Indian trappers will often use a bunch of mountain ash berries for bait.

They are found most plentiful on the higher ground, where the land is fairly well timbered, and the surface of the country is very ragged. They are great travelers and follow the wooded ravines whenever possible. Like all other animals of a rambling nature, each individual has its regular route of travel, and when you see a track, especially in a ravine, you may be sure that the animal will come that way again. The fur becomes prime about the first of November, and remains in good condition until the first of April, or sometimes longer. They are not very prolific, there being only from two to four in a litter. The young are usually born in April.

Usually, the fisher is easily trapped and will enter the trap as readily as the marten, but there are "off seasons" when food is plenty and the animals are rather shy. On such occasions I have seen them refuse to cross my trail in the snow. In most cases, however, they will jump into the trail and follow it to the trap. When trapped, the animal struggles violently and if the leg is broken, is likely to twist off the foot and escape. It will also chew up everything within reach and the traps must be well fastened. The use of a balance pole is advised, but where, for any reason, it cannot be used, the

traps should be fastened to a heavy log. The most common method for trapping the fisher is by setting a trap in a pen of stakes or a natural enclosure, the same as recommended for marten, but the pen should be larger. It should be two feet high, wide at the top and just wide enough for the trap at the bottom.

The bait should be placed on a stick in the back of the pen and the trap should be covered with some light material. The pen should be roofed with evergreen boughs, to protect the trap from the snow. It is the custom among the Indian trappers to make the trap pen of green wood, splitting it and placing the stakes so that the split side will be inward. The object in this is to enable the animal to more easily locate the bait, for sometimes when the fisher scents the bait but cannot find it at once, he moves on. If however, the pen presents a bright interior it attracts the animal's attention and leads to an investigation. This method is used generally, but should not be employed when setting for the more wary animals.

The Indians also at times hang the bait by a piece of light wire, in preference to placing on a stick. This is so that the little wood-mice can not reach and destroy the bait, and I have found it to be a very good plan. A small twig should

be placed under the pan of the trap to prevent squirrels and birds from springing it.

For trapping the fisher, I recommend the No. 1½ traps of all makes, also the No. 2 Victor and Oneida Jump traps. Mr. Charles Carner, a noted trapper of California, uses the following method. Find somewhere on the fisher's route of travel, a small bushy evergreen tree with limbs coming down to the ground, cut away a few of the limbs, on one side, so as to make a sort of enclosure. The limbs that are cut away should be stuck in at the sides and back to make the pen tighter. The bait should be tied to the stem of the tree and the trap set a short distance in front of the bait, so as to catch the animal by the fore foot. The trap is fastened securely to the butt of the tree. Mr. Carner recommends the use of the following scent. Fish oil, oil of anise, assafoetida and muskrat musk, thoroughly mixed. He saturates a rabbit with the scent and draws it from trap to trap, and on the last trap uses the rabbit for bait. This scent is also used by some other noted trappers.

I have also caught fishers by building a pen on an old log, lying with one end above the ground. I would make some splits in the log with my axe, drive in a few stakes and weave evergreen boughs among the stakes, roofing the pen with boughs. The trap should be set the

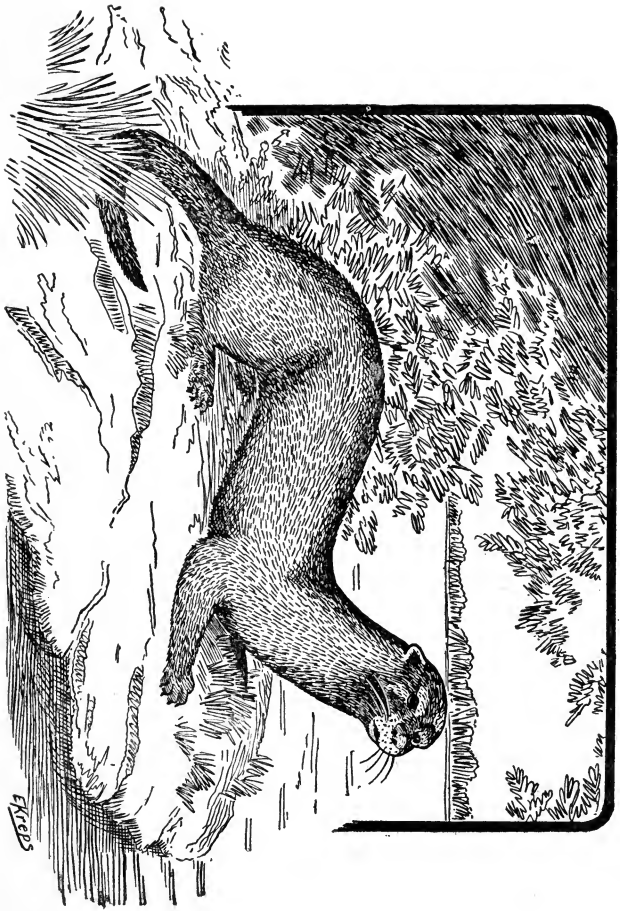
same as in the first method and should be stapled to the top of the log, so that when the animal jumps off on either side, he can not get his front feet or the trap down to the ground. The above methods are all very good, but if a particularly shy animal refuses to enter the pen, try setting in a natural enclosure, and if this fails, try the following method:

Under some thick evergreen tree, scrape up a cone shaped pile of snow, making it two feet high and pack the snow solid. Have the trap fastened to a clog and bury the clog in the snow. In the very top of the mound, hollow out a place for the trap and line this place with evergreen tips. Set the trap in this nest, cover it with a piece of paper, and brush a half inch of snow lightly over the paper. For bait, use a whole partridge or rabbit and hang it by a string from a limb of the tree, so that it hangs about two and a half feet above the trap.

Brush your tracks shut with a bunch of boughs and when looking at the trap do not go too close. This method is very good for the shy ones but is too much trouble to use as a regular set, when putting out a long line of traps. The best places in which to set for fishers is in the timbered ravines, especially where two ravines join. Other good places are at the ends of lakes,

the points of swamps, and in narrow strips of timber connecting larger bodies.

The track of the fisher is very similar to that of the marten but is larger. The length of jump is about three feet and the footprints from one and a half to two inches in length.



The Otter.

CHAPTER VII.

THE OTTER.

THE otter is a carnivorous animal, somewhat resembling the mink in appearance. They are found in various parts of the world and will be met with in most of the wilder parts of North America. The northern or Canadian otter is the most common, but there are other varieties known as the Carolina otter, the Florida otter and the Newfoundland otter. In habits and general appearance they are all similar.

A distinct species is found in the North Pacific, and is known as the sea otter. This animal is considerably larger than the fresh water species, and has a shorter tail. The fur is of great value.

The otter is an aquatic animal, living in and near the streams and lakes, and getting its living from them. It has a long body, short, stout legs, and webbed feet; the tail is long, thick at the base, and tapering to a point. The neck is thick, the head comparatively small, with small ears, set well down on the sides of the head. The fur

is of two kinds, the under fur being fine, soft and wavy, and of a light silvery color; while the outer fur or guard hairs, are longer, coarser, and usually straight, the color varying from brown to almost black. The fur of the tail and under parts is shorter and stiffer than that on the back, sides and neck; that on the under parts having a silvery tint. Otters frequently measure three and one-half feet in length and weigh from fifteen to twenty-five pounds. The skin, when stretched, will often measure five feet from tip to tip, and sometimes even more.

The food of the otter consists principally of fish, trout being their favorite food; but they also feed on muskrats, clams, frogs, and the smaller animal life, found in the beds of streams and lakes.

They capture muskrats by entering their houses and their holes in the banks.

Otters usually make burrows in the banks of streams, lining the nest with leaves and grass. The entrances to these burrows are under the water and it is my belief that they inhabit them only during the breeding season. The young are born in April and May and there are from two to four in a litter.

The otter is a great traveler, following the lakes and water courses, sometimes going a distance of one hundred miles on a single trip. Ap-

parently he is always in a great hurry to reach a certain place, some lake or pond, at which, having reached, he may remain for several months, and again he may leave immediately after his arrival.

Otters sometimes have slides on the banks of streams, down which they slide into the water, apparently for pastime. They also have landing places on the banks of streams and on logs projecting into the water, where they go to roll in the grass and leaves, or to lie in the sun. These places are seldom visited in the fall, but in the spring, they will land at almost every place as they come along.

In traveling, they usually follow the center of the stream, as they are more at home in the water than on land. In winter they travel under the ice, wherever the water is deep enough to allow of their passage. The otter's legs being very short, he has a peculiar method of traveling on the ice or snow. He throws himself forward, sliding on his belly, and by repeating the move in rapid succession, is enabled to get along at a surprising rate of speed.

Wherever there is a sharp bend in the stream, the otter will make a short cut across the point, and if the stream is traveled much, you will find a well-defined trail in such a place. Where two streams lie close together, they some-

times have a trail from one stream to another. Also wherever a long point of land projects into a lake, they are likely to have a trail across the point.

The otter appears to be on very friendly terms with the beaver, and if there are any beavers in the country, the otter is sure to find them and will spend considerable time in the same pond. When there are a number of families of beavers in the same locality, the otter will spend nearly all of its time with the beavers, visiting from one family to another. Wherever he finds beaver cutting along the stream, he examines it, and will most likely follow up the stream to find the beaver. This habit is taken advantage of by the Indian trappers of the north, as will be explained later.

In the north, the otter becomes prime about the first week in November, and remains in good condition until about the first of June. In the south they are seldom prime until the first of December, and commence to shed from the first to the fifteenth of April. The fur of the otter is valuable, the dark, straight haired ones being worth the most. Occasionally an otter is found having a decided curl to the ends of the hair, the ends being turned forward. These are called "curly" otters and are not near so valuable as the others.

Otters are found in good numbers in the swamps of the southern states; in Florida, Arkansas, Mississippi, Louisiana and the lowlands of Texas. They are also quite plentiful in some parts of Massachusetts, New Hampshire, Vermont and Maine; also in the wilds of Labrador, Ungava, Quebec, Ontario, Yukon, Mackenzie and Alaska. The most valuable otters come from the far north, but they are probably more plentiful in the south, and the southern trapper has the advantage of having open water all winter.

The best traps for otter are the numbers $2\frac{1}{2}$, 3 and $3\frac{1}{2}$ Newhouse; the Nos. 3 and 4 Hawley & Norton; and the No. 14 Oneida jump, also the "Seminole" pattern, Blake & Lamb.

The point to keep in mind when trapping for otter, is that they are very shy of the scent of man; more so perhaps than any other animal, and unless great care is observed, are likely to be frightened entirely out of the locality in which you are trapping. This human scent theory is disputed by some trappers, but I speak from my own experience, and from the experience of many expert trappers with whom I am acquainted. If one will use a little judgment he will readily understand why human scent is alarming to many wild animals. Man is the natural enemy of all wild animal life, and all wild creatures realize this fact. Now you will see

that any indications of the presence of man, puts the animal on its guard; especially is this the case in the wilderness where the animals are not accustomed to seeing the tracks of man wherever they go. When an animals finds human scent, he has positive proof that man has been in that vicinity.

Footprints and other human signs, if there is no scent, are not so alarming, as they are likely to be mistaken for signs made by some wild animal. Although the animals of the wilderness are more afraid of human scent than those found in the settled countries, they are just as easily trapped. The more wary animals found in settled parts, are always looking for danger because of the continued presence of man in their locality, but on the other hand, they are not likely to be frightened by human scent because it is a common thing to them.

As mentioned before the otter is sure to visit the beavers, if there are any about, so if you know of a family of beavers, go to that place and if you can find an old beaver dam, on the stream somewhere, below where the beavers are located, make a break in the center of this dam, so that all of the water will flow through this opening, and set the trap in the water, in the upper end of this passage. Narrow down the passage to about eight inches, by driving a few old

stakes on each side of the trap. The trap may be staked, but it is better, if the water is deep enough, to use a sliding pole, so that the captured animal will drown. No covering is needed on the trap, but after it is set, the entire setting should be drenched with water, to remove the human scent. This is an excellent set and will remain in working order until late in the fall, as the water immediately above the break in the dam will not freeze until long after other water is closed by ice. Even in the coldest weather this set may be kept from freezing by roofing it over with evergreen boughs, and banking it well with snow.

Beavers and beaver dams are not found in every locality, but wherever otters are found traveling on small streams, they may be trapped in the following manner:

Find a narrow place in the stream, where the water flows smoothly, and narrow up the stream by placing a bunch of old dead brush in each side, leaving a passage of about eight inches in the middle. Lay a few stones among the brush to keep them in place. Set the trap in the opening, and splash water over the brush and banks. The trap may be staked but it is better to fasten to a clog. Cut a small sapling of such a size that the ring of the chain will just pass over the butt of the sapling. Slip the ring over

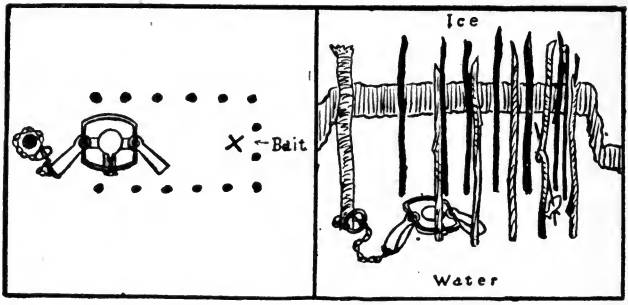
the clog and fasten it by splitting the butt and drive a wedge in the split, or by driving a staple over the ring. The clog may be placed on the upper side of the brush, used to block the stream, and the top may be tied to the shore, so that it will not be carried away by high water. In very small streams, a narrow passage may be made, by simply placing a few stones in either side, leaving a narrow passage in the middle, in which to set the trap.

When you can find a sharp bend in the stream, with a trail across the point, set the trap in the water, at the end of the trail. Use same care as advised for the other sets.

For spring trapping this method is excellent: if you can find one of the otter's landing places on the bank, prepare the place for setting in the fall in the following manner: Make a nest for the trap in the center of the trail and fill the nest with grass and leaves. Lay a bunch of dead brush or a chunk of rotten wood on each side of the trail, so as to leave only a narrow passage and cut a clog and lay it in place. The otters seldom visit these places in the fall, so there is no danger of frightening them. In the spring, before the snow is all gone, go and set your trap in the place prepared, covering with the leaves and grass, and attach to the clog, covering the

entire setting with a little snow. As the snow melts, it takes with it all of the scent and signs, leaving the trap ready for the first otter that comes along.

If you do not find the landing places until after the snow is gone, set the traps just the same, washing the scent away by sprinkling with water, or set the traps in the water where the otter climbs up the bank.



Otter Trap Set Under Ice.

Another very good method for spring trapping, is to set the trap in the edge of the water, where the bank bluffs a little, sticking up a few fresh cut, green sticks behind the trap, and at the sides. Post a piece of the dried oil castor of the beaver on a stick, behind the trap, and about ten inches high. The ordinary beaver castor is also good. The oil castor is very attractive to

the otter, and the green sticks are also attractive, as the otter mistakes them for beaver cutting. Always fasten the trap so the animal will drown, as you are likely to catch a beaver in this set.

One of the best methods of trapping otter in winter, after the streams are closed with ice, is as follows: Find a long pool of still water, where you are sure the otter will be traveling under the ice, and at either end of this pool, where the water is about ten inches deep, cut a hole through the ice, make a pen of dead sticks in the water, making the pen about nine inches wide, by twelve or fifteen inches deep. Now take a fish and fasten it to a stick, in the back of the pen, and set the trap in the entrance, staking it securely. Drive the stake about ten inches in front of the pen, and directly in front of the trap. The object in this is to cause the otter, in entering, to twist his body, in which act, he will put his foot down in the trap. Throw some snow in the hole, so it will freeze over. The bait should be renewed once a week. In case you cannot get fish for bait, use the head of a rabbit, the breast of a partridge, or a piece of muskrat. The bait should be skinned.

The otter will also be attracted by any white object. I know a trapper who caught one in this way by baiting with a white door knob, and the

Indians sometimes use a piece of fresh peeled poplar for bait.

If the ice has formed when the water was above its usual level, there will be an air space, between the water and the ice. In such a case, cut a hole through the ice at the edge of the water, placing a piece of beaver castor on a stick behind the trap. The hole may be closed by covering with a block of ice.

When the otter has been working on a lake for some time, you will find where he has been coming out at the springholes, which are found on nearly all lakes. In such places the water is always shallow, and a trap may be set on the bottom directly under the hole. Great care must be used however, for if the otter is not caught the first time he comes out, he will be frightened away.

Otters often land on the logs which project into the water. When you can find such a log, cut a notch for a trap, so that it will set about two inches deep, and place some mud in the notch so as to hide the fresh cutting. Some very successful trappers, set their traps in this way, and place some good scent on the log, above the trap.

If you can find an otter slide, find the place where the animal lands on the bank to visit the

slide, and set the trap under about two inches of water.

The Nos. 2½ and 3½ Newhouse traps were designed especially for trapping otters on their slides. The trap should be set at the foot of the slide, so as to catch the animal by the breast or body.

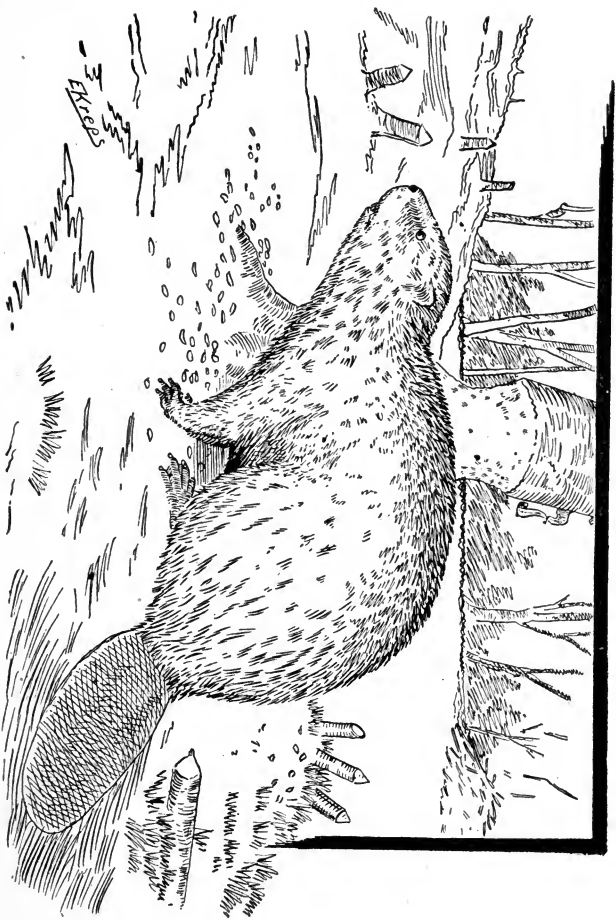
Otters often travel in pairs, and it is usually advisable to set two or three traps on one stream.

Do not make your camp near the stream, and do not travel along the stream more than necessary. In looking at the traps, do not go too close, unless the traps need your attention.

There is no way in which the sea otter can be trapped and they are hunted only with rifles. The methods employed in hunting them have been very successful and as a consequence the animal has been practically exterminated.

The track of the otter is peculiar, owing to their strange mode of travel. As before mentioned their method of travel is a series of plunging slides and in the snow they make a deep furrow, their footprints being from four to eight feet apart, according to the "sliding conditions". When two or more are traveling in company, they will usually all run in the same trail. Their tracks are as a rule, only seen on lakes and

streams, but occasionally they will go overland from one stream to another. The footprints will measure about one and one-half or one and three-fourths inches in length and about the same in width.



The Beaver.

CHAPTER VIII.

THE BEAVER.

WHEN this country was first explored and settled, beavers were found in good numbers throughout the United State and Canada, but at present they are extinct in many of the states where they were once abundant. Today they are found in fair numbers throughout the greater part of Canada and Alaska, also in a few of the northern and western states. There are also a few beavers found in the south at the present time. However, many of the states, as well as some of the provinces of Canada, have made laws prohibiting the trapping or killing of beavers, to prevent them from being exterminated.

The beaver is an amphibious animal, resembling the muskrat in appearance but much larger. It has the same thick, heavy body, short neck and scaly tail. The hind feet are large and strong and the toes are connected by a web; the front feet are small. The tail is "paddle shaped," four or five inches wide and about ten inches long. When full grown, the beaver will

weigh from forty to fifty pounds, although occasionally a much larger one is found. The under fur is very fine and soft, and is mixed with longer and coarser hairs called "guard hairs". The prevailing color is a rich, reddish brown, on the back and sides, and ashy beneath.

The food of the beaver consists mostly of bark, of such woods as poplar, birch, willow and cottonwood, as well as the roots of the water lily. In the south they also eat corn.

Beavers build houses of sticks, stones, and mud, similar in shape to the houses of the muskrat, locating usually, in the edge of a pond or lake, but often making a large pond to suit their requirements, by building a dam across the stream. Even when their houses are built on a lake or pond, they always build a dam across the outlet, so as to raise the water two or three feet.

The dams are built of the same material as the houses. Sometimes there are one or two small dams found below the main dam, and they are so well made that they will last for many years, and are so tight that the water usually drips evenly over the top.

The houses are also very well made, the walls being several feet in thickness. There are usually two entrances, both under water. The size and general shape of the house depends on the number of beavers inhabiting it. The house

of a full family of beavers will usually measure about twelve feet in diameter at the water line, but will some times be even larger, and the height is about six or seven feet. When there are only two or three beavers, the house is much smaller, and more pointed on the top.

A full family consists of from six to eight members. There are usually two old beavers, two or three two year olds, and two or three young. The reason for this is that the young beavers remain two years with the parents, and as it requires several years for them to grow their full size, there are always three sizes in a family. When they have reached the age of two years, they start out and make a house of their own, the beavers born the spring before, becoming the medium size, and a new litter taking their place. By autumn, the beavers that have left the main family have their house and dam completed and a store of food laid up for winter.

Many of the beavers travel about through the summer, following the streams, and return to their homes early in the fall. Sometimes, if they are late in getting back they will have to work day and night, in order to get sufficient food gathered for winter, before the ice comes. This food consists of saplings and small trees, which they gnaw off about a foot above the ground,

drag into the edge of the water, where they are cut up into pieces of different lengths, stored away, under water in front of the house. Just how they cause this wood to sink, remain in place under the water, is a mystery. The beaver spends the entire winter under the ice. When he feels hungry he goes out and gets a piece of wood, takes it into the house, eats the bark, and takes the peeled stick out again. They repair the house and dam each fall and they also make holes in the bank under water, to which they can retreat in case the house is disturbed, or when they hear a noise on the ice.

Trappers who are well acquainted with the habits of the beaver, can make a fair estimate of the number of inmates of a house. It sometimes happens that a pair of young beavers, or a lone beaver that has escaped from some family which has been trapped, will locate in an old deserted house, and then it is not such an easy matter. The experienced trapper, however, is not likely to be fooled. He goes along the shore and carefully examines the stumps, where the animals have been cutting trees for food. The amount of stuff that has been cut will show, usually; but he has still a better way of determining whether the work was done by one or more beavers. He examines the teeth marks on the stumps, and if

they are all alike, he decides that there is not a full family, but only two, or perhaps only one.

A lone beaver that has escaped from the trapper, is difficult to trap. I remember once finding such a one, located on a large pool of a fair sized stream. He had no dam and had only a small house along the bank. I found him in the fall, while the water was still open, and he was busy laying in a supply of food for winter. Well, I went there one rainy day and set two traps. I set the traps very carefully, fastening to sliding poles, which I had cut quite a distance away so as not to make any noise near the house. The rain washed the scent away in a short time, and I could see no reason why he should take alarm; but he did, just the same. I kept those traps set a week, but did not catch him, nor did I ever see any fresh signs there, after I had set the traps. Apparently he had left the place immediately after I had set the traps. An Indian trapper had trapped several families of beavers, near there the season before, and this beaver was one that had "given him the slip."

In cutting timber, the beaver takes the wood in small chips, gnawing all around the tree, until it falls. He knows absolutely nothing about throwing the tree in the direction in which he wishes it to fall, but lets it fall just as it is

inclined to go. I have seen where a tree had lodged, refusing to fall, and the beaver had stood up and cut several pieces off the butt, and as the tree still refused to fall, he had let it remain hanging. It was a case of hard work and no pay.

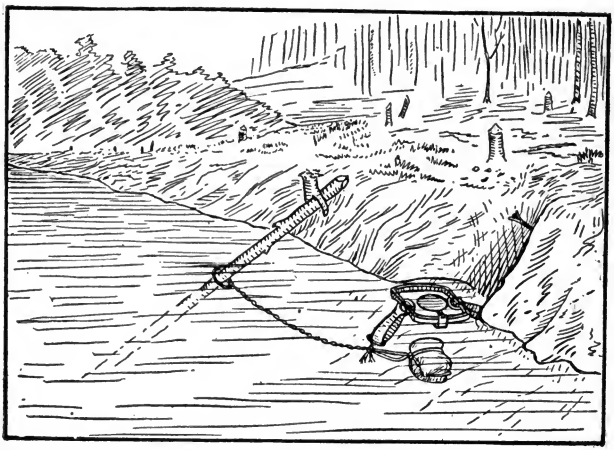
When one finds a family of beavers, and expects to trap the same ground each season, he should not attempt to catch them all, as by leaving a few to breed, he is sure of getting beavers each season. The Indians, in such cases, trap the old beavers only, which they do by setting the traps a good distance from the house, for the young beavers never venture far away.

Many beavers are trapped in the fall just before the ice forms, but their fur is not prime until mid-winter. In the north they remain in good condition until the first of June; in the south they would probably not be good after the middle of April.

Beaver castors have a market value, usually selling for seven or eight dollars a pound. In preparing them, they should be dried slowly, in a shady place. Most trappers prefer to keep the castors for scent, as it is attractive to many animals. The Indians sometimes combine the two scents by making a hole in the beaver castors, and squeezing the contents of the oil castors into them. The castors are then hung up

and allowed to dry. This is more or less attractive to all animals, only a small piece being used in connection with the bait.

The best traps for beavers are the Nos. $2\frac{1}{2}$, 3, $3\frac{1}{2}$ and 4 Newhouse, the No. 4 Victor, the No. 4 Oneida Jump, and Blake & Lamb.



Trap Set for Beaver — Sliding Pole.

The following methods of trapping are for use in open water, in either the fall or spring. The first method given is usually considered best:

Find a place where the bank bluffs a little and the water is of good depth. Make a little pocket in the bank, several inches deep, and set

the trap in the water directly in front of this pocket, where the pan of the trap will be about two inches under water. Take a piece of beaver castor and fasten it to the bank with a stick, about fourteen inches above the water, and as far back in the pocket as possible. If you are using some other scent instead of beavor castor, just dip a small stick in the scent and fasten it to the bank. Fasten the trap so that the beaver will drown; the sliding pole is best. Be sure to use a dead pole or stake, as if a green pole is used the other beavers may carry it away, trap and all. This is a very good method for spring and fall, or at any time when there is open water:

Here is another method for the same kind of place:

Set the trap under water at the foot of a steep bank, and fasten a couple of green poplar or cottonwood sticks on the bank, directly over the trap, so that the beaver will step into the trap in trying to reach them. Have the fresh cut ends of the sticks showing plainly, and make your set near the house or dam so that the beavers are sure to see it. Fasten trap so that the captured animal will be sure to drown. No covering is needed on traps when they are set under water.

Look for the beaver's slides or trails where

he drags his food into the water, and if the water is deep enough to drown him, set the trap under about two inches of water, just where he lands on the bank. This set is all right in the fall, when the beaver is laying in his food for the winter, but is not much good in the spring. Some trappers set the trap a foot or more from the shore, where the water is about six inches deep, as by so doing the beaver is caught by the hind foot, and is not so likely to escape. When using a set of this kind, it is best to use a number $3\frac{1}{2}$ or 4 trap, as the No. 3 is too small for the beaver's hind foot.

Beavers usually have a slide or trail over the center of the dam, and this makes a very good place to set a trap. Set the trap under water on the upper side of the dam, just where the trail leads over. Be sure to fasten the trap so that the animal will drown, as if it is not drowned, it is almost certain to escape, and even if it does not, the others will be frightened and you will have a hard time to get them.

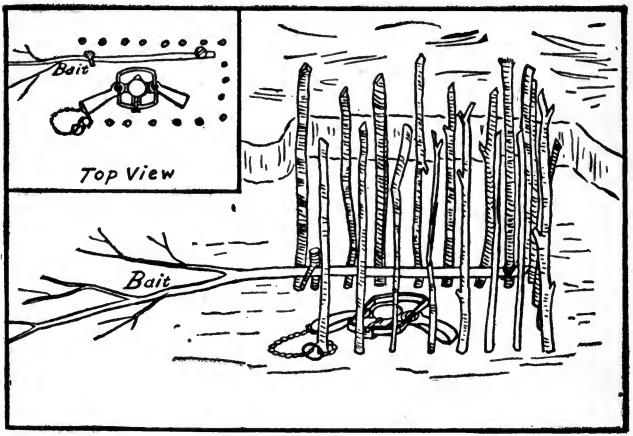
In the spring, after the ice has gone, it is a good plan to set a few traps along the stream, baiting with beaver castor, as the beavers are traveling at this time, and you are likely to catch one almost anywhere along the streams. When setting traps in this way, it is best to drench the set with water to remove the human

scent. The beaver is seldom afraid of human scent, but there is likely to be an otter along that way, and you stand a good chance of catching him in a trap baited with beaver castor.

Beavers may be caught in mid-winter and early spring, by setting baited traps under the ice. It is not much use to set traps under the ice in early winter, as the beaver's food is still in good condition, and they will not take bait well; moreover you are likely to frighten them and make them harder to trap later on. The following methods are among the best for use under the ice, the one first given, being most used, and is probably the best:

Go close to the beaver's house where the ice is thin, and by cutting small holes in the ice, find a place where the water is about twelve inches deep. Having found such a place, enlarge the hole until it is about sixteen by twenty inches in size, making a pen the same size as the hole, by shoving down dead sticks about four inches apart. If the bottom is very hard, you will have to freeze the sticks to the ice, to hold them in place. This may be done by throwing snow in the water, and packing it around the sticks and against the edge of the ice. When the pen is completed, cut a piece of green poplar about $1\frac{1}{2}$ or 2 inches thick and two or three feet long,

and fasten it to a stake by one end—the poplar being placed at a right angle to the stake. This green poplar is for bait, and the stake should be driven down in one corner of the pen so that the bait is within two or three inches from the bottom, and close along one side of the pen, extending a foot or more beyond the entrance.



Beaver Trap Set Under Ice.

The trap should be staked and set well inside of the pen, and quite close to the bait, so that the jaw of the trap will just clear the bait. This set will be readily understood by referring to the cut. If the bottom is of thin mud, as is often the case, you will have to make a bed for

the trap, by sinking a bunch of evergreen boughs inside of the pen. It is also best to fasten the bait near the entrance to prevent the beaver from swinging it around. When the set is completed, cover the hole with evergreen boughs, bank it with snow, to keep it from freezing.

It is best to let this set go for about a week before looking at it. The beavers will be frightened and will not approach the set for a few days, but finally one of them musters up courage enough to try to pull the bait out of the pen. When he finds it fast, he cuts it off at the entrance of the pen, takes it to the house to eat it; this sharpens his appetite, makes him more courageous, and he finally ventures into the pen for the balance of the bait. In attempting to cut the bait, he places one front foot on the bait and the other one in the trap. When using this set you should use three or four sets at each house.

Another good ice method is as follows: Find the proper depth of water, about fourteen inches, and make a pen of dead sticks arranging them in the form of a half-circle. Now take some green poplar and shove them down firmly into the bottom, about six inches apart, close up to the stakes, on the inside of the pen. These bait sticks must be long enough to reach above the ice, so that they will freeze fast at the top. Stake the trap and set it in the center of the

enclousre, with the pan about nine inches from the center bait. Throw some snow in the hole, so that it will freeze and hold the bait sticks securely.

The following method is one of the best for use in deep water: Cut a dead pole about four inches in diameter and six or seven feet long. Flatten the pole at one end, and loop the trap chain around the pole; then set the trap on the end of the pole and tie it with a string, to hold it in place. Now, cut an oblong hole in the ice, and place the pole in the water in an inclined position so that the trap is about twelve inches below the ice. Pack wet snow around the pole to hold it in place, fasten two sticks of green poplar in the ice over the trap, one on either side. In attempting to cut the bait, the beaver will put his foot in the trap.

Always fasten your trap to a dead stick or pole, for if a green stake is used, the beavers are likely to carry it away, trap and all. Poplar and cottonwood make the best baits, but in case they cannot be obtained, use birch, willow or black cherry.

When setting traps near the house, in open water, make as little noise as possible, and do not remain in the vicinity longer than necessary.

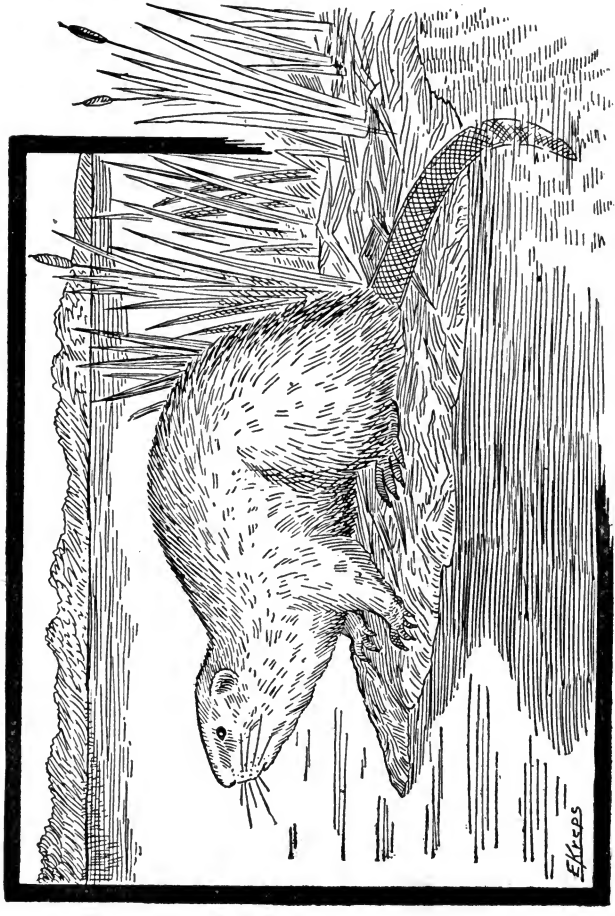
When trapping in open water, never camp or make a fire near the pond where the beavers

are located. In winter, after the ice has formed, it does not matter.

If you find a beaver house in winter when the snow is deep, and wish to know if it is inhabited, examine the house, and if the snow is melted on the top, you may be sure there are beavers in it.

Another way to tell whether a house is inhabited, is to cut a hole through the ice and shove down a piece of green poplar, filling the hole with snow. Examine it in about a week, and if the poplar has been cut, you may be sure you have found beavers.

The track of the beaver is seldom seen as they do not move about much in winter and on their trails their tracks are obliterated by the food which they drag into the water. The trapper does not look for tracks, but for more conspicuous signs, such as houses and dams with fresh cut wood.



The Muskrat.

CHAPTER IX.

THE MUSKRAT.

THE muskrat is a small herbivorous animal of the amphibious class. Its head and body are from thirteen to fifteen inches in length. The tail is nine or ten inches, two edged, and for two-thirds its length is rudder shaped and covered with scales and thin, short hair. The front feet are small, the hind feet, large and slightly webbed, making the animal an expert swimmer. The color of the fur is brown above and ashy beneath.

The muskrat is a nocturnal animal, but is sometimes seen in the day time. Their food consists of grass and roots, fruit, grain and vegetables. They will also eat clams, sometimes, when food is scarce. They thrive best in sluggish streams and ponds, bordered with grass and flags, the roots of which are their chief support and from the tops of which they construct their houses. These structures are dome shaped, and rise, sometimes to a height of five feet from the water. The entrances are at the bottom, under water, so that the inside of the house is not ex-

posed to the open air. From six to ten muskrats are sometimes found in one house. Hundreds of these dwellings can be counted from a single point in many large marshes.

The muskrats found on the streams do not build houses, but live in holes in the bank, the entrances of which are under water. The muskrat is found throughout the greater part of the United States and Canada. They are especially numerous in the marshes on the coast of Delaware and Maryland. This muskrat ground is owned by private parties, who lease the ground to the trappers for a certain length of time, the trapper catching all the animals he can in that length of time. Muskrats are also very plentiful in some parts of Western Canada. These animals are very prolific, bringing forth from six to nine at a birth and three litters in a season. They have many enemies, such as the fox, mink, otter and owl, but their greatest enemy is man.

Muskrats are trapped in the fall, winter and spring, but they are not prime until mid-winter, and some are not fully prime until the first of March. Nevertheless, they are more easily caught in the fall, and as the skins bring a fair price, the most trapping is done at this time, that is for "bank rats,"—those living in holes in

the banks. Where the muskrats live in houses, they are trapped mostly after the ice had formed.

In the far North the skins are in good condition until the first of June, while in the extreme South they should not be trapped after the first of April. The muskrats found in settled districts are larger and better furred than those of the wilderness, also, those found East of the Mississippi River are larger than those of the West.

When trapping for these animals, the traps should always be staked full length of chain into deep water, so that the captured animal will drown, as otherwise they are almost certain to twist off the foot, and escape, unless they are caught by a hind foot. Many trappers set their traps several inches under water, as by so doing they catch the rat by a hind foot, and there is very little danger of them escaping. Some stake their traps the length of the chain into deep water, and drive another stake about a foot beyond. The muskrat, when caught, winds the chain around the outer stake and is thus prevented from reaching the bank. Others prefer to tie a stone on the end of the chain, and lay the stone in deep water.

The traps most used are the Nos. 1 and $1\frac{1}{2}$, but the No. 0 is also used sometimes. The Vic-

tor trap is a great favorite, as it does not have as strong a spring as the higher priced traps, and is not so likely to break the animal's leg. The single spring Oneida Jump traps are also fine traps for muskrats.

One of the most common methods of trapping the muskrat is to find their slides on the bank and set the trap at the foot of the slide under about two and a half or three inches of water. No covering is needed.

If you can find a log, with one end lying in the water, examine same and if there are muskrat droppings on the log, cut a notch for the trap, so that it will be just under water when set in the notch. The chain may be stapled to the log.

Another good way is to find their holes in the bank and set a trap in the entrance, staking into deep water.

If the water is still, and there is much grass in the water, look around, and you will find their feeding beds, — beds of grass which appear to be floating on the water. Set traps on these beds, under water.

If you know there are muskrats about and you can not find any of the places described above, select a steep bank, and set the trap under

two or three inches of water at the foot of the bank. Pin a piece of bait to the bank about ten inches above the trap.

Where muskrats are found in large numbers as in a pond or slough, proceed as follows: Get a board about twelve inches wide and sixteen feet long and nail strips across it, arranging them in pairs, just far enough apart to let a trap set between. A board of this size will hold six or eight traps. The traps may be stapled to the edge of the board and some small pieces of bait scattered the entire length. The traps should be covered with dirt or dead grass. Attach a rope to one end of the board and anchor it in the water where the muskrats are sure to find it.

To trap muskrats in their houses in winter, cut a hole in the side of the house, and set the trap inside, on the bed. Fasten the trap to a stick outside of the house and close the opening tight, so the diving hole will not freeze. I have had best success at this kind of trapping by using a small trap, No. 0, and a good length of chain, as it gives the rat more chance to drown. The traps should be visited evening and morning.

In the spring, when the ice has just commenced to melt, you will find small piles of grass roots projecting above the ice. Move this aside and you will find a hole in the ice, with a

feed bed directly in under it. Set a trap on this bed and cover the hole.

The best baits for muskrats are sweet apple, parsnips, carrot, pumpkin, corn and the flesh of the muskrat. While they do not eat the meat, they will go to smell at it, which is all that is needed. Muskrat musk, beaver castor and catnip are all attractive to the muskrat.

The Red Fox.

CHAPTER X.

THE FOX.

THE various members of the fox family are found in almost all parts of the world but are most abundant in the Northern Hemisphere. There are many species and varieties, but it is those of North America that are of the most interest to the trapper.

Those found on this continent are the red, the gray, the kit and Arctic foxes, and there are a number of varieties of the red and gray species.

The black, silver and cross foxes are supposed to be only color varieties of the red, but why this occurs, and only in the North, is a mystery.

The Silver or Black fox is the most beautiful and most valuable of all the foxes. It is found in the high, northern latitudes of both continents. In this country, it is found as far south as the northern tier of states. They are most abundant in the interior of Alaska, the Northwest Territories, Ontario, Northern Quebec, Labrador and Newfoundland.

At the London fur sales, specimens have

been sold at over one thousand dollars each, but the average price is probably about two hundred dollars. Wherever the Silver fox is found, the Cross or Patch fox is found also, and they also range somewhat farther south. They are always found in greater numbers than the Silver variety.

The Red fox is the most common and is distributed over a larger territory than the other varieties. They range from the northern timber line, to well down in the Southern States. They are probably most abundant in the Eastern provinces of Canada and the England States, but they are found in fair numbers in parts of New York, Pennsylvania, West Virginia, Tennessee, Arkansas, Missouri, Michigan and the larger part of Canada and Alaska.

The Gray fox is one of the least valuable, and is most abundant in the Southern States. In the East they range as far north as Connecticut. In some places they have supplanted the Red species, and in other places the grays have disappeared and the reds have taken their place.

The fox, as well as the wolf and coyote, belongs to the dog family, which is second, only to man in intelligence. The different species are all practically the same size, but the same varieties vary in size in different localities. The average weight is from nine to ten pounds. In

general appearance they somewhat resemble the dog, being rather light of build, considering their height. The ears are erect and pointed, the tail thick and bushy, and the muzzle small and pointed. The fur varies in the different species, being coarse and rather short on the Gray, while that of the Silver fox is extremely fine and soft.

The mating season comes in February, and the young are born usually in April, there being from four to nine in a litter. They make dens in the sand hills and in rocky districts, den in the rocks. Except during the breeding season they spend very little time in the dens, but lie during the day in some clump of brush or weeds, or often on top of a stump or log. In mountainous sections they lie during the day, somewhere on the mountain side and come down into the valleys at night in search of food.

The fox is not strictly a carnivorous animal. When food is scarce they often feed on apples and other fruits, but their regular food is flesh. They are fond of partridge, rabbits, mice, skunk, muskrat or opossum flesh, carrion of almost all kinds, fish, eggs, poultry, and often they come around the camps and gather up the scraps, bread, bacon rinds etc. If they are given time and not disturbed they become quite bold in coming to such places for food and the trappers

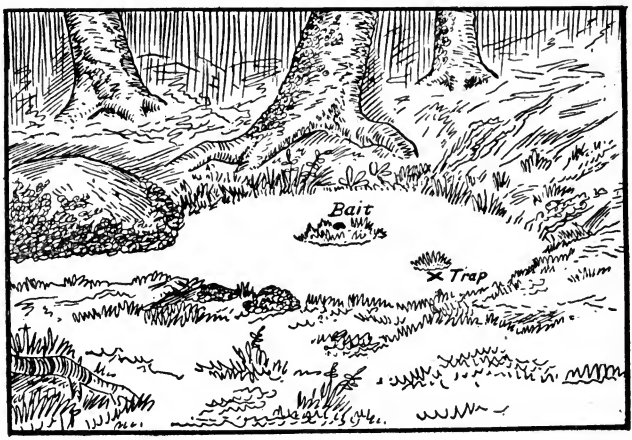
sometime take advantage of this peculiarity by baiting them awhile before setting the trap.

The fox in the North becomes prime in the beginning of November and remains in good condition until the middle of March, when the fur begins to take on a rubbed and woolly appearance. In the South they do not become prime until the last of November or the beginning of December and go out of prime in February. Most of the foxes are trapped in the fall before the ground freezes too hard for dry sets, and of course, many of them are not prime.

The traps recommended for the fox, for dry land use are the Nos. 2 and 3 Oneida Jump and Blake & Lamb, the 1½ Newhouse and Hawley & Norton and the No. 2 Victor. For water and snow trapping, the Nos. 3 and 4 Oneida Jump and Blake & Lamb, and the 21½ and 31½ Newhouse will be found most desirable.

In places where there are springs and small streams, there is no better method than the old water set, which is made as follows: It is best to find a spring which does not freeze, but for early fall trapping a brook will do. The rise and fall of the water in small streams sometimes makes trouble, and a spring or small pond gives best results. The spring should be at least four feet in diameter and should be prepared for the

set in the summer, but if care is used, may be fixed up during the trapping season. A moss covered stone, or a sod (according to surroundings) should be placed about a foot and a half from shore, and should rise about two or three inches above the water. This is the bait sod.



Water Set for Fox.

The trap is set half way between the sod and the shore, and the jaws, springs and chain should be covered with mud, or whatever is found in the bottom of the spring.

The pan of the trap should just be covered with water. Now take a nice piece of moss or sod and place it on the pan of the trap, so that it

will rise an inch above the water. When properly placed, this sod will look natural and will, apparently be a safe stepping place for the fox. The pan should be so adjusted that it will not spring too easily. A small piece of bait and also some scent should be placed on the larger sod.

In making this set you should wade up the outlet of the spring, and stand in the water while making the set. Do not touch the bank or any of the surroundings. The trap should be fitted with a chain about three feet in length, with a two prong drag attached, but most trappers simply wire a stone of eight or ten pounds weight to the end of the chain. The drag, whatever is used, should be buried in the bed of the spring.

I recommend the flesh of the muskrat, skunk, opossum or house-cat for bait, and it should be allowed to taint by remaining about a week in a glass jar. This method was first used by William Schofield a famous fox trapper of the Eastern states. Two men have been known to catch over one hundred foxes in a season with this method, besides considerable other furs taken in the same traps, for the method is good for many other animals besides the fox.

One trapper recommends setting the trap in exactly the same manner, except that the bait sod is omitted, and the bait, a bird, is fastened by means of a stick thrust in the bottom of the

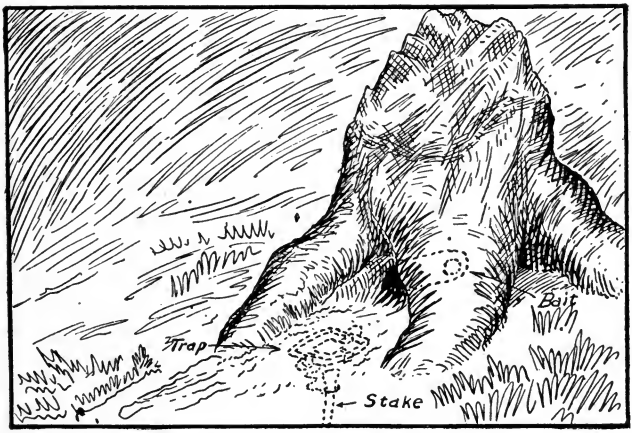
spring. The stick must be entirely out of sight, and the bird, apparently, floating in the water. Both of these methods are very good, and are especially recommended for the novice, as they are the easiest and surest methods to start on.

The water sets given above, can of course, only be used in certain places, for in some of the best fox countries, springs cannot be found, and even the streams are not suitable for trapping. For this reason many professional fox trappers prefer to use dry land sets, and the blind set will be found to be one of the very best.

Look for fox tracks in old stock trails, foot paths, old roads in the woods, openings under fences, etc., and having first cleaned the traps by boiling or washing, find a narrow place in the trail and dig out a nest for the trap. Make this nest so that when the trap is set in it, the jaws will lie lengthwise of the trail. Line this nest with dry grass or leaves, and having attached the trap to some sort of a drag, set it and place it in the place prepared. Fill in all around the outside of the jaws with dry dirt, and cover the springs. Now lay a piece of clean paper over the trap and cover all with about one-fourth inch of dirt, making it look like the other parts of the trail as much as possible. The chain and drag must be carefully concealed.

It is best to have a basket or piece of canvas

in which to place the dirt while making the set and to carry away what is not needed. Do not spit near the trap, and do not leave any signs of your presence. It is not necessary to wear gloves, but the hands should be kept clean. This is an excellent method, especially for the old, sly animals.



Dry Land Set for Fox.

The professional trappers of the East use the bait method, mostly, and although the different trappers use different baits and scents, the methods of setting the traps are all, practically the same.

The following directions are almost the

same as you will get when you buy a method at from $1.00 to $5.00 or more. "Prepare your bait about a week before you want to set the traps, by cutting into pieces about half the size of an egg, and placing in a clean jar to become tainted. Put a little bit of scent on each bait before placing in jar. There are different ways for preparing the traps; most trappers prefer to boil them in hemlock boughs, or lay them over night in running water. Wear clean gloves when handling the traps and carry them in a clean basket. Now find an old stump or a rock along some hillside, and dig a hole under it making the hole four or five inches in diameter and ten or twelve inches deep. Stake the trap solid, driving stake out of sight, and set the trap about ten inches in front of the hole. Cover the trap first with a piece of clean paper and finish by about one-fourth inch of dirt dug out of the hole. It should look as if some animal had dug the hole and scratched the dirt out in front. Use a small shovel made for the purpose, or a sharpened stick to dig the hole, and keep your gloves on all the time. Do not walk around, but stand in the same spot until the set is complete. Now put a piece of bait in the back of the hole, using a sharpened stick to handle the bait and put just a little scent by the side of the hole. When you catch a fox, kill him

without drawing blood, and set the trap back in the same place. Your chances for catching another fox are doubled. Skunks, coons and other animals will also be caught in these sets."

The following method is a good one to use in settled countries, as it is not so likely to catch dogs and other animals, as other methods are. Find an ant-hill, a small, pointed knoll, an old rotten stump, a moss covered rock, or an old log with one end off the ground. Set the trap on the highest point, covering carefully, so that it looks just like it did before the trap was set. Place a fair sized bait, such as a skunk or muskrat about eight feet away from the trap. The fox is always suspicious of a bait, especially a large one, and will always get on the highest point to look at it before going close. Of course, there must be no other place for him to get up on, near the bait. In the winter, traps may be set on muskrat houses, and bait placed on the ice. I think it best to set the traps several days before placing the baits, as in that way the human and other scents have a chance to pass away. When baiting, go just close enough to throw the bait into place.

Some trappers set traps around large baits, such as the carcass of a horse, cow or sheep, but I think it best to place the bait by the side of a trail and set several traps on the trail from

thirty to seventy five yards from the bait. When feeding on the bait the foxes will travel on the trail, and they will not be looking for danger so far away from the bait.

Comparatively few of the professional fox trappers can trap the fox successfully after the deep snow come on; but the following methods are the best known, and will catch the fox if you use care in setting. Of course, snow sets of any kind can only be used when the snow is dry and loose and likely to remain in that condition for some time.

The first method given is the one used by the Canadian Indians, for taking the silver fox in the great northern wilderness. Out on the ice on some frozen lake, or on any open, wind swept piece of ground, make a cone-shaped mound of snow, beating it solid, so that it will not drift away. The trap should be fastened to a clog, and the clog buried in the mound. Make the mound about two feet high, and make a hollow in the top for the trap to set in. The hollow should be lined with cat-tail down, or some other dry material, and the trap set in the hollow and covered first with a sheet of white note paper, finishing with a half inch or more of loose snow. Do not handle this snow with your hands, for if you do it will be certain to freeze on the trap. The best way is to take a bunch of evergreen

boughs, and brush the snow up over the mound so that it sifts lightly over the trap. The covering on the trap should be a little lower than the top of the mound so that the wind will not uncover the trap. The bait is cut into small pieces and stuck into the sides of the mound.

After the trap is set it will only require a short time for the wind to drift your tracks shut and remove all traces of human presence, and the trap will remain in working order as long as the cold weather lasts. If water rises on the ice it will not reach your trap, and if there is a snow storm, the first wind will blow the loose snow off the mound, leaving just a little over the trap. When looking at the traps you should not go nearer than fifty yards, and do not turn off your route, but walk straight by. This is a splendid method for use in the far north where the snow never melts or freezes during the winter months.

For use in the settled countries I have been very successful with this method. Find where foxes travel on old wood roads and with your traps clean, and with drags attached, go and break a trail in the snow by walking back and forth on the road, and set the traps in this broken trail without bait. The traps should be set and covered, as in the other method, and the chain and clog pushed under the snow at the

side of the trail. Do not let it appear that you have stopped at all, and when looking at the traps you can follow the trail and step right over the traps. In settled localities, the fox will follow the trail because the walking is better, but in the wilderness where the track of a man is seldom seen, they not only refuse to follow the trail, but often will not even cross it.

I believe that scent is more used for fox-trapping than for trapping any other animal. Some of the best trappers, however, do not use any scent at all, but I believe that if the right kind is used, that it is a great help. One of the best scents known for dry land or water sets is prepared as follows: Remove the fat from one or two skunks, chop it fine, and take a sufficient quantity to almost fill an ordinary pickle bottle. Take two mice; cut them up and add to the fat and let the bottle stand in the sun until the mixture is thoroughly decomposed; then add the scent of two skunks and five or six muskrats. The bottle must be kept covered so the flies will not blow it, but it must not be tightly corked. Different trappers have different ways of preparing this scent, but I think this way is the best.

Another very good one is made by allowing the flesh of a muskrat to rot in a bottle, and adding about four ounces of strained honey and one-half ounce of essence of musk.

Pure fish oil is attractive to the fox, and is used by some very good trappers. We believe that one of the most successful scents, especially for winter use is made by taking the generative organs of the female fox, when in heat and preserving it in alcohol. The urine of the fox is also good, but in using these two scents, no bait should be used.

The brine from mackerel or other fish is claimed to be a good scent for foxes, but if there are any porcupines, or snow-shoe rabbits about, it will make plenty of trouble as the salt is very attractive to these animals.

When making blind-sets, or when setting on a trail some distance from a bait, do not stake your traps, but fasten to a drag of some kind: a brush, a stone or a grapple. By so doing the fox will not spoil the trail for the next one, and the trap may be set back in the same place. For a bait set on dry land, the trap may be staked to advantage, for if one fox is caught and rolls around over the ground, you are more likely to catch another one there.

Do not start out with a dozen traps and expect to make a success of fox trapping. You should have all the traps that you can look after.

Do not depend on one method of setting, as a fox will sometimes learn your method, but

some other method, even if it is not so good, may fool them.

When killing foxes in traps, do so, if possible without drawing blood. One of the best ways is by piercing the heart with a wire dagger. Another good way is by breaking the neck, which may be done as follows: Strike the fox a light blow over the head with a stick, just hard enough to slightly stun him, and when he drops down, place your left hand on the back of his neck, pinning him to the ground and with your right hand pull his nose backward against his back. It requires some practice to do this right.

The track of the red fox resembles that of a small dog, being perhaps a trifle narrower. The length of step is about twelve or fourteen inches, and the foot prints of an average sized fox will measure about one and a half inches in length.

The track of the gray fox is rounder and more like that of a cat.

Some hunters claim that they can distinguish the track of the male fox from that of the female, the footprints of the female being smaller and a trifle narrower in proportion.

There is no difference in the footprints of the black, silver, cross and red foxes.

The Coyote, or Prairie Wolf.

CHAPTER XI.

THE WOLF.

THE WOLF belongs to the dog family and is found throughout the greater part of North America, also in Europe and Asia, and parts of South America. There are many varieties, varying greatly in size and color, but there are probably only two distinct species, namely, the timber wolf and the prairie wolf, commonly called the coyote. Of the timber wolves, we have in this country, the following varieties; the small dark grey or black wolf of Florida and southeastern United States, the red wolf or southern Texas; the brindled wolf of Mexico, the light grey wolf of the central plains region; the dark grey wolf of eastern Canada; the white wolf of northern Canada and Alaska and the large black or dusky wolf of the northwest coast region.

Of the smaller prairie wolf, there are also several varieties, they being found throughout the prairie regions of the United States and Canada, extending westward to the foot of the Rocky mountains, and also occurring west of

the mountains, in the states of Oregon and Washington. To the trappers and the western people in general, these two species are commonly known as the wolf and the coyote, pronounced ki'yote. As a rule, the varieties of timber wolves found in the far north are larger than those of the south. While they are found in fair numbers in most parts of the regions mentioned, the prairie wolf or coyote is far more abundant in the sections lying east of the mountains; there being, in most localities, probably fifty coyotes for one wolf.

Of the large species, the common grey wolf, of the western stock region, is probably most abundant, and the most destructive to stock and game. The grey wolf varies considerably in size, the largest specimens weighing sometimes more than one hundred pounds. The fur is long and heavy and good prime skins bring usually from two to five dollars each. In former times, when the buffalo was abundant on the plains, they formed the chief food of the wolf, but since the buffalo has become an animal of the past, the wolves depend on stock for food. They are very destructive to cattle, horses, hogs, goats, etc. Occasionally a herd of sheep is raided, but this is of rare occurrence, as the sheep are always guarded by the herders.

In the north where there is little or no stock

raised, they prey on game of almost all kinds, being very destructive to deer and even killing moose, at times. They also follow the herds of cattle, which range in the mountains during the summer and in winter are found in the foot hills. The coyote preys on young deer and antelope and on small game, such as rabbits, prairie dogs, sage hens and badgers. They are very destructive to sheep, and many of them follow the sheep when they are driven into the mountains in summer.

The breeding season of the grey wolf varies considerably, some being born in the summer, but the majority are born in March and April. The mating season comes mainly in January and February. There are usually from five to eleven in a litter. They breed in the foot hills and bad lands, in holes in the buttes and rim-rock and sometimes in enlarged badger dens. The breeding season of the coyote generally comes later than that of the grey wolf; most of them being born in April. They also breed in natural excavations in the rocks.

Wolves are great ramblers and range over a large section of country. Like all other animals of rambling habits, they have a regular route of travel, and while they vary somewhat from the route, you may be certain to find them using the same passes through the hills, and the

same route across a flat. However, when in pursuit of game, they go far out of their course.

Almost all of the states where wolves are found, as well as some of the provinces of Canada, pay a bounty on wolves and coyotes. The bounties are different, in different states and so also, are the bounty laws, and the methods of obtaining the bounty money. Usually the skin and head, or part of the head, or the feet and bones of the legs, must be produced, in order to obtain this bounty.

Besides the state bounty, the ranchmen often offer an additional sum, which in most cases, amounts to far more than the state bounty. Sometimes, when some particular band of wolves become especially destructive to stock, the bounties offered for these wolves amount to a fancy sum of money. On one particularly destructive wolf, in the state of Wyoming, bounties were offered amounting to five hundred dollars. Of course such instances are rare, but in most cases, the bounties are sufficient to make wolf trapping profitable, even in the summer, when the fur is of no value.

For trapping grey wolves, I recommend only the Newhouse trap. A special trap is manufactured, for grey wolves, No. 4½. It has an eight-inch spread of jaws and a five foot chain, fitted

with a heavy iron drag, and with chain, complete weighs nine pounds. However, many trappers consider this trap too heavy and the No. 4 Newhouse trap is used more than any other. When these traps are used, they should be fitted with a heavy chain of suitable length, and a pronged drag. The length and stye of chain needed will depend much on the method of setting. If the trap is to be staked, I think the ordinary length of chain is best but unless there are two or more traps used in a setting, I would not advise staking the trap.

Some trappers do not use a drag, but wire a heavy stone to the end of the chain. The stone should be fastened securely, for it will be handled pretty roughly, if a wolf gets in the trap. For the coyote, I recommend the Nos. 3 and 4 Newhouse, the 3 and 4 Hawley & Norton, the No. 4 Oneida Jump trap and Nos. 3 and 4 Victor. They should also, be fitted with special chains, unless the traps are to be staked. Good hard-wood stakes should be provided and they should be about fifteen inches long, unless the ground is very soft, in which case they should be longer. As good hard-wood is scarce in many parts of the west, it will sometimes be best to have iron picket pins, made by the local blacksmith.

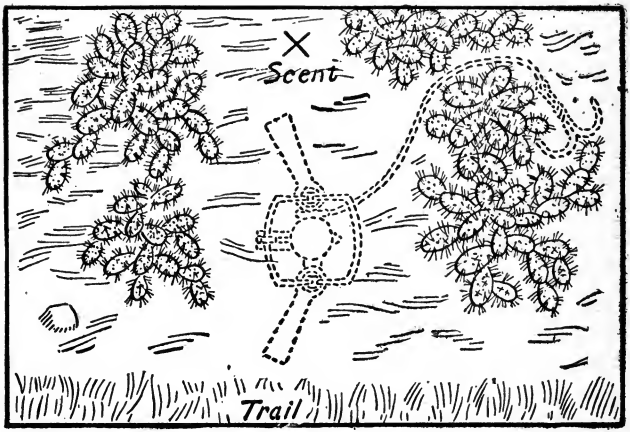
The bait for the grey wolf should be strictly

fresh, for if food is plenty, they are pretty particular. Any of their favorite foods may be used for bait. For the coyote, horse or sheep is probably best, but prairie dogs, rabbits (both sage and jack rabbits), sage hens, badgers, etc., make good bait. When using small animals for bait, they should never be skinned, for that makes the animal suspicious.

Many different kinds of scent have been used for wolves. Some have been used successfully but in using scent, one should also use good sound judgment, or he will only make the animal suspicious, and harder to trap. Beaver castor and Chinese musk are mildly attractive. Siberian musk is very attractive to both the grey wolf and the coyote. Assafoetida used alone, is worthless, but may be mixed with other scents, to advantage. The urine of the wolf, bottled and kept until it has become rancid, is a very good scent, and the sexual organs of the female, taken when in heat, added to the urine, makes it far more attractive to the male. This scent is most successful during the mating season and should be used without bait.

A very effective scent and one that is much used is made as follows: Place half a pound of raw beef or venison in a wide mouthed bottle and let it stand from two to six weeks, or longer, or until it is thoroughly decayed and the odor

has become as offensive as possible. If the meat is chopped fine, it will aid decomposition. When thoroughly decayed, add a quart of some liquid animal oil—prairie dog oil is probably best, and one-half ounce of assafoetida, dissolved in alcohol and one ounce of tincture of Siberian musk,



Scent Set for Wolf.

or if this can not be obtained, an ounce of pulverized beaver castor or one ounce of the common musk used as perfumery. Mix thoroughly and bottle securely until ready for use. This scent is attractive to both the wolf and the coyote, also to cattle and horses and in using it the

traps should only be set in places where they are not likely to be disturbed by stock.

This method of trapping, as well as the above scent formula is given by Mr. Vernon Bailey, who made an investigation of the wolf trouble in the interests of the Biological Survey and the department of Forest Service.

"The best anchor for a wolf trap is a stone drag of 30 or 40 pounds weight, to which the trap is securely wired. A long, oval stone is best, but a triangular or square stone can be securely wired.

The trap, stone and chain should be buried out of sight close to a runway, where the wolves follow a trail or road, cross a narrow pass, or visit a carcass, with the trap nearest the runway and when covered, flush with the surface of the ground. To keep the dirt from clogging under the pan, the pan and jaws should be covered with a clean, oval shaped paper, and over this should be sprinkled fine earth until the surface is smooth and all traces of paper and trap, have been concealed. The surface of the ground and the surroundings should appear as nearly as possible, undisturbed. The dust may be made to look natural again by sprinkling with water.

Touching the ground, or other objects with the hands, spitting near the trap or in any way leaving a trace of human odor nearby, should

be avoided. Old, well scented gloves should be used while handling the trap and making the set, and a little of the scent used for the traps should be rubbed on the shoe soles. A piece of old cowhide may be used to stand on, and on which to place the loose dirt when burying the drag and trap. Place the scent about 6 inches beyond the trap and a very little may be sprinkled over the trap, to the trail.

If possible, place the trap between two tufts of grass or weeds, so that it can be readily approached from one side only."

As many of the wolf trappers do not believe in scent, the following methods are given. They are methods that have been thoroughly tested and are being used today, by some of the best trappers. The first method is a trail set, for use with a large bait, and is equally good for grey wolves and coyotes. It should be remembered, however, that trail sets of any kind, can not be used to advantage, if there is much stock about. Find a well defined stock trail somewhere on the wolf's route of travel and set two traps close together, on the trail, then go on from fifty to one hundred yards and set two more in exactly the same manner. Use care in setting the traps, so as to leave everything looking the same as before. You can wear gloves if you like, but I do not think there is much gained

by doing so, for it is impossible to make a set without leaving some human scent. The scent will pass away in a day or two and few trappers count on making a catch until after the traps have been set a couple of days.

A large bait should be placed close along the trail and midway between the two settings. When the wolves get to feeding on the bait they will travel on the trail and will not be looking for danger so far from the bait. If desired, only one trap need be set in a place, but two are better, as the wolf is likely to step over the trap if only one is used. It is a good plan to set the traps several days before placing the bait, so as to allow time for the human scent to pass away and the setting to take on a more smooth appearance.

Here is a method that is much used for both wolves and coyotes. It requires three or four traps and they should all be fastened securely to one stout, hard-wood stake. Find a smooth, sandy spot and scoop out a little hollow and drive the stake down until the top is below the level of the ground. Fasten your bait securely to the top of the stake, so as to hide the stake and prevent the wolf or coyote from taking the bait away. If three traps are used, spread them out in the form of a triangle, if four are used, arrange them in the form of a

square. Set the traps very carefully, so that when they are covered, everything will be smooth and looking just like it did before. As the bait is fastened, the wolf can not take it away, and in trying to pull it up, will step in one of the traps. He is almost certain to get in another

Bank Set for Wolf and Coyote.

one when he commences to struggle, and there is little danger of him escaping. If a place can be found where the traps may be set between bunches of weeds, cactus, etc., so much the better.

Another very good method, is to set a trap on top of a straight or over-hanging bank, from

four to eight feet high, so that when the animal is caught it will leap or fall over the bank and be unable to get back, where it would have a chance to struggle. The set is made as follows: Find two bunches of cactus, growing on the top of the bank, fix the bait on the very edge of the bank, between the two bunches of cactus. Fasten the bait with a small stake, and drive the stake out of sight in the bait. Stake the trap just the length of the chain from the edge of the bank, driving stake out of sight, and set the trap between the cactus and about twenty inches back from the bait, somewhat farther if grey wolves are expected. Cover the trap very carefully. If two bunches of cactus can not be found growing close together, get some and place it there, so that it will look natural, and have the appearance of having grown there.

A single trap may be set almost anywhere, and small pieces of bait scattered around the trap. In this way you can bait the trap without dismounting from your horse and avoid leaving human scent.

Mr. Vasma Brown, a noted trapper of Texas, gives the following method: "Take a large piece of fresh meat and drag it along a trail. Stop occasionally and set a trap, just outside of the edge of the trail, where the stock will not step in it. Dig out a place for the trap and

set the trap, covering first with a piece of paper and finishing with sand, leaving the place looking just like it did before. Cut some of the meat in small pieces and scatter them around the trap. Use no scent; fresh pork is the best scent you can get. If you can find some animal that the wolves themselves have killed, do not fail to set traps there immediately."

When trapping around a large bait, sometimes the animals will not approach close enough to be caught. In such cases a small bait may sometimes be used to advantage, by setting traps a short distance away. The tail of a skunk is said to be an unfailing lure. Do not smoke or grease your traps or the wolf is sure to locate them at once.

Sometimes a badger will be caught in a wolf trap. If so, do not skin it, but kill it and set the trap close by. It will make a fine bait, and the trap may be set in the ground that the animal has dug up, leaving no signs of human presence.

When trapping during freezing weather, fill in around the jaws and springs of the traps with sage leaves, or some similar dry material, before covering with dirt.

Always carry a rifle with you when tending the traps. You will get shots at wolves or coyotes almost every day.

When visiting wolf traps, always go on horseback and if possible avoid dismounting near the traps.

Dark, cold, stormy nights are the best for the wolf trapper.

Use plenty of traps. The more chances you have, the better success you will have.

Sometimes a coyote will uncover a trap or dig it up and spring it. Nothing can prevent this. Your only remedy is to have lots of traps set, and if he fools you in one set, you may fool him in another.

In warm weather, if you can set out a line of traps just before a rain, your chances for making a good catch are very good, as the rain washes away all human odors, and helps to smooth over the sets. In winter, a light snow fall will often help to increase the catch.

The tracks of the wolf resemble those of the dog and fox. An average full grown grey wolf will make a foot print about three inches wide and four inches long and will step about twenty inches. The average sized coyote will make a footprint about two inches in length and the length of step is about sixteen inches.

The Grizzly Bear.

CHAPTER XII.

THE BEAR.

THE bear family is a large one, and its members are found scattered over the greater part of the globe, Australia and Africa being excepted. They range through all latitudes, from the equator to the poles. The following species have been described by naturalists: Polar bear, grizzly bear, European Brown bear, American Black bear, Alaskan Brown bear, Inland White bear, Glacier bear of Alaska, Asiatic bear, Siberian bear, Spectacled bear of South America, Thibetan bear, Bornean bear and Malay bear. The three latter are called Sun bears, from their habit of basking in the rays of the mid-day sun. They are the smallest members of the family and live exclusively on vegetables.

Bears differ from each other in consequences of the differences of climate, more than almost any other animal. Those that inhabit the far north and such high, cold regions as the Rocky mountains, are monsters, of great strength and ferocity, while those that inhabit

warm countries are small, feeble and inoffensive. The smallest of all is the Bornean bear, while the Alaskan Brown bear is probably the largest. The Grizzly or Silver Tip, and the Polar bears are very large.

The American Black bear is probably the most numerous of the family, and is one of most interest to the trappers. With the exception of the prairie country, they are found scattered over almost all of the United States, and a large part of Canada and Alaska. The Cinnamon is only a color variety of the Black bear, differing only in color. Both kinds are found in the same litter. In some sections, as for instance in some of the northwestern states, and in Mexico, the Cinnamon bear predominates, while in the east and north they are very rare. The average weight of the Black bear, when full grown, is from two hundred to three hundred pounds, but specimens have been killed weighing far more than these figures. The fur is fine and soft and usually of a jet black color.

Bears of all kinds, with the exception of the Sun bears and the Polar bear, feed on both vegetable and animal food. The Polar bear lives entirely on fish and flesh. Bears, with the exception of the Polar species, hibernate in winter. They usually den in the ground or rocks, but sometimes in a hollow log or tree.

The mating season is in July and August and the young, usually two, are born in January, February and March. They remain with the mother until fall, and sometimes longer.

In sections where they are found in fair numbers, they form trails through passes in the mountains, along the bottoms of the cliffs, around points of the lakes, and in other places of like nature. These trails may be easily distinguished from the paths of other animals, by the marks on the trees. At intervals, all along the trail, the bear will stand on his hind feet, by the side of a tree, gnaw a circle around the tree, about five feet above the ground. I am told that this marking is done during the mating season. The trails are traveled more in the spring and summer than in the fall.

Bears are very fond of fish, and in the north, when fish are in the streams, spawning, the bears spend much of their time fishing, at the foot of the falls. The sucker is the first fish to spawn, and as soon as they are gone, the pike come, and the bears fare well for a couple of weeks. After that they feed on the leaves of the poplar, insects, berries and nuts, and whatever meat they can find. In some sections they remain in the same locality during the entire year; in other places they migrate on the ap-

proach of cold weather and do not return until spring.

The bear becomes prime about the first to the fifteenth of November, and remains in good condition until late in the spring. In northern sections they do not commence shedding until June fifteenth, and sometimes even later. The best time to trap them is in the spring just after the snow is gone, but many are trapped in the fall.

The traps for black bears are the Nos. 5 and 15 and the Nos. 50 and 150 Newhouse. For larger bears the No. 6 is the trap to use, although many grizzly bears are caught in the No. 5.

The most common method for trapping bears is the following: Make a sort of enclosure of old logs, brush, etc., in the form of a V, about eight feet long and two or three feet wide at the entrance. It should be three feet high, behind, but it is not necessary to have it so high in front. The bait should be fastened in the back of the pen, and the trap set in the entrance.

Take a small, springy stick, about eight inches long, and spring it under the pan of the trap, to prevent small animals from being caught. To do this, stick one end firmly in the ground, and bend the other end down, and hook it under the pan. The trap when set, should

support a weight of twenty-five pounds, but it is my opinion that most trappers allow the trap to spring too easily.

Always turn the loose jaw up, and work from in under, for the sake of safety. Now drive down a couple of stakes on each side of the trap, so as to leave only a narrow passage; cover the trap with leaves or moss. It is a good idea to put a good sized piece of moss over the pan. To cause the bear to step in the center of the trap, some trappers put sharp sticks around the outside of the jaws, others lay a stick across the mouth of the pen, about six or eight inches high, and close up to the jaws. In stepping over it, the bear is more likely to put his foot in the trap. The trap should be fastened to a heavy clog of hardwood. For the Black bear, the clog should be about six or seven feet long, and just small enough to go through the ring on the chain. The ring should be slipped on to the middle and fastened with a spike. For the grizzly and other large bears, the clog should be larger.

This is the best method, but if you nip a bear once, you will have to try some other method, and it is not likely that you will catch him, even then, as they become very cunning. Do not set the trap at the same place, but find his trail,

and make a blind set; preferably where the trail leads through a pool of water. Of course you must be sure that no person will travel on the trail. Some trappers prefer to hang a bait about six feet above the trap and do not use any pen.

Bears may also be trapped successfully with snares and deadfalls but the objection to these traps is that the animal is killed instantly and if the traps are not visited daily, the skin is likely to spoil.

For bait, there is nothing better than fish, but pork, (either salt or fresh), mutton, beef or any kind of large game is good. Even the flesh of the bear makes fair bait. Beaver, otter or muskrat meat is also good. Honey is very attractive.

There are a number of scents that are attractive to the bear, such as fish oil, oil of anise and beaver castor. The scent recommended for the raccoon is good for the bear.

The track of the bear is easily distinguished from that of other animals, because of its large size. Ordinarily, the bear's mode of locomotion is a shuffling walk. The footprints of a large black bear will measure about eight inches in length.

The Raccoon.

CHAPTER XIII.

THE RACCOON

THE raccoon is allied to the bear family. It is found only on the Western Continent, where it is represented by two species; the common raccoon of the United States and the crab-eating raccoon of the tropics. The common raccoon, called coon by the hunters and trappers, is found throughout the Mississippi Valley and all of the states east and also in the Pacific Coast states, Western British Columbia, Lower Ontario, New Brunswick and Nova Scotia. They are found in greatest numbers in those states bordering on the Gulf of Mexico.

The common raccoon is the one of principal interest to the trapper and fur dealer. The body is short and stout, like that of the badger. Its head resembles that of the fox. Its tail is ten or twelve inches long, thick and bushy. The feet are bare and the toes long. The general color is grey, the tips of the hairs being darker. Occasionally a very dark one is found, in some cases being almost black. The tail is ringed with

black and a black band crosses the eyes. The raccoon is a nocturnal animal, is omnivorous and hibernates during cold weather, coming out in search of food only on warm nights.

This food consists of green corn, grapes and other fruits, fish, frogs, clams, birds and their eggs and they are also fond of poultry. In search of food, they travel mostly along the streams and in early fall, in the corn fields.

They den in hollow trees, having an entrance at a considerable distance from the ground. In mountainous districts, they also den in holes among the rocks.

The young are born in April and May and from two to six are brought forth at a time. Their mating season is generally about the last of February and the beginning of March, and at this time the males travel considerably, crawling into a hollow tree wherever daylight overtakes them.

In the North they become prime about November 1st; the season being later in the South. They remain in good condition until late in the spring. The fur is used mostly for coats and robes.

The nature and habits of the raccoon, like all other animals differs considerably in different localities. In most sections they are very easily trapped, but those found in some parts

of the Pacific Coast are said to be quite cunning. Any of the articles of food mentioned above, will make good bait; fresh fish however, being preferred. The traps to use are the No. 1½ Newhouse or Hawley & Norton, the No. 2 Victor, and the Nos. 2 and 3 Oneida Jump and Blake & Lamb traps. The trap should be fastened to a clog, and in some cases an iron drag could be used to advantage, as the coon will get fastened up on the first brush he comes to.

The most common method is to set the trap in the entrance of a pen of stakes, at the edge of the water where the animals travel. The trap may be set dry or under water, as preferred, and the bait should be placed in the back of the pen.

Another very good method, much used in the South, is to fasten a piece of bright tin or a piece of a white dish, on the pan of the trap and set the trap under about two inches of water, near the bank. No bait is used, but a little scent may be used on the bank to good advantage.

The Southern Trappers sometimes find a tree, stump or rock in the edge of the water, and set the trap in the water, just where the 'coon will walk, when passing around the obstruction. A fence made of brush will answer the same purpose.

Where the bank is steep and the water is shallow, dig a six inch hole, straight into the

bank at the edge of the water. Fasten some bait in the back of the hole and set the trap in the water, directly in front of the hole.

Where coons are visiting a corn field, find where they go through the fence and you will sometimes find a well beaten trail. Set the trap in the trail, covered, and fasten to a clog.

If you find a log lying across the stream and there are signs of 'coons about, cut a notch in the top of the log and set the trap in the notch, covering with rotten wood or moss. You are likely to catch a fox in a set of this kind.

When a den tree can be found, cut a pole five or six feet long and six inches thick; lean it against the tree and set the trap on the pole. Cover the trap lightly with moss and staple to the tree.

Any natural enclosure along a stream, such as a hollow log or a hole under a stump, makes a good place to set a trap. When trapping for foxes with water sets, many coons will be caught in the traps.

One of the best scents for 'coon is made as follows: To a pint of fish oil, add twenty or thirty drops of oil of anise and two ounces of strained honey. Pure fish oil is used by some trappers and beaver castor, muskrat musk and oil of anise are also good.

The trail of the raccoon is somewhat like that of the mink, but the tracks are larger. The animal makes the print of the entire foot and the long slender toes show plainly. The print of the hind foot will be from two and a quarter to three inches in length.

The Badger.

CHAPTER XIV.

THE BADGER.

BADGERS are burrowing, carnivorous animals. They are found in North America and various parts of the Old World; one species being found in Europe, one in India and another in Japan. There are several varieties of the American species and they are found at present only west of the Mississippi River, although formerly they ranged as far east as Ohio. They are perhaps most numerous on the high, dry plains just east of the Rocky Mountains, and range from Mexico to well up into Canada. They were at one time quite numerous in Wisconsin and Minnesota, as well as others of the Northern and Central States, but today are found but rarely in those sections. Wisconsin is sometimes called the "Badger State" because of the numbers of these animals found there by the early settlers.

The badger is an animal of peculiar build, having a heavy, broad body, at times appearing almost flat, as when it crouches close to the ground, and the legs are short and stout. The

feet are furnished with long, strong claws, adapted for digging. The tail is short, the ears short and round, the eyes small and black. A full grown specimen will measure about two feet or more from the end of the nose to the base of the tail.

The color is a grizzly, yellowish grey, being darker on the back. A white line traverses the face, head and neck, bordered with black, which latter marking extends around the eyes. The sides of the face and the throat are white, and there is a black patch in front of each ear. The legs and feet are black. The back and sides of the body are mottled somewhat by narrow streaks of darker fur.

The fur, or more properly speaking, the hair, is long and appears to be parted on the back as it hangs off to either side from a line down the center of the back. Each separate hair shows a number of colors and it is this which gives the animal the peculiar grizzled appearance. Although the animal is, as before stated, of a heavy build, the casual observer would scarcely credit the animal with the great strength which it really possesses, because of the apparently soft and flabby body, however, the strength of the animal is surprising. They are slow moving creatures and were it not for their strength

and powers of digging, they would have difficulty in procuring a sufficient amount of food.

They feed on the small burrowing animals mainly, such as the prairie dog, the gopher and the pouched rat, and they are enabled to capture many of these animals by digging them out of the dens. They also eat mice and reptiles and the eggs and young of ground-nesting birds.

Being such an expert digger, the badger makes a deep den. The entrance to the den is wide and surrounded by a mound of earth. In addition to the main den the animal has a number of others nearby, so that one would scarcely know which of them is the main burrow. They are hibernating animals and remain in the dens during the cold portion of the winter.

The animal is of a rather timid nature, and when alarmed seeks safety in the den if possible, but when surpised far from the den, will hide wherever possible and failing to find cover will flatten down close to the ground and by remaining very quiet, will try to escape notice. However when pursued, and finding escape impossible, they will fight desperately.

The young are born in early spring, there being as a rule three or four in a litter.

The fur of the badger is used for making brushes of various kinds, its peculiar texture

making it especially desirable for this purpose. It is not used for wearing apparel.

The No. 3 trap is the proper size to use for this animal, and only the stronger ones should be used. They are caught and held occasionally in smaller and weaker traps, yet such cases are exceptional.

As the animal is not a valuable one and is not found in large numbers in any one locality, they are not much sought by the trappers and the most of the skins which reach the market are from the animals caught in traps set for other game. The wolf and coyote trappers catch them occasionally, as they may be captured by any of the methods used for those animals.

Perhaps the best way in which to capture the badger is to set the trap at the entrance to the main burrow, that is, the one showing the most use. The trap should be set just outside of the entrance and should be securely staked, using a long stake driven out of sight in the ground. The jaws of the trap should be parallel with the passage, so that the badger will step between the jaws, and not over them. It should be bedded down so that the covering will be flush with the surroundings.

Traps may also be set with bait. On the plains, material for enclosures can not be found but the traps may be set between clumps of

sage brush or cactus, placing the bait behind the trap, the setting being so arranged that the badger will be obliged to walk over the trap in order to reach the bait. The trap should be securely staked in all cases. For bait, rabbit, sage hen, prairie dog or almost any kind of fresh meat may be used.

The Opossum.

CHAPTER XV.

THE OPOSSUM.

THE opossum is the only American member of the family of pouched animals. Only one species is found in this country although others are found in other parts of the world. Of the American species, naturalists have discovered three varieties, namely the Virginia opossum, the Florida opossum and the Texas opossum, all very similar.

The Virginia opossum is the most common and the most widely distributed, being found as far north as Pennsylvania and Ohio and from there westward to Nebraska and southward. In the southwest the Texas opossum is found.

In general form the opossum resembles the house rat but is much larger. The tail is almost bare and is prehensile, that is, it is capable of holding on to anything which it encircles. The muzzle is long and pointed, the ears bare.

In color this animal is generally a grizzly gray but some specimens are much darker than others. The fur is long, soft and fluffy.

The opossum dens in the ground and the abode is usually located under a stump or rock. The burrows are shallow and terminate in a larger cavity lined with dry leaves. They also sometimes locate in hollow logs. They are found only in timbered districts and are active climbers. Their food consists mainly of mice, eggs and young birds and insects, but they are also fond of poultry and almost any kind of flesh, fresh or tainted. They are not strictly carnivorous as they feed on persimmons, paw-paws, polk berries and other wild fruits.

They are slow moving and stupid creatures and have no means of defending themselves against their enemies. It is true that they do have a habit of feigning death when frightened but this trick is of no value in case of an attack from other animals, for no wild animal would be deceived, and even if it were, there would be no hope for the opossum for it would only be a case of a meal already prepared for the attacking animal. On other occasions instead of feigning death the animal will open its mouth and present a rather fierce appearance, but there is little danger of them biting.

While the opossum is not a hibernating animal it remains in its den during cold weather. It is a southern animal and the severe winters in

the northern parts of its range are not to the animal's liking. They are most active on warm, damp nights for they do not like to move about when the weather is dry and the leaves are rustly.

They are very prolific, bringing forth from six to twelve young at a litter and in some cases even more. When newly born they are very small and imperfectly formed and are carried by the mother in the pouch on the under side of the body until large enough to travel.

They become prime about the second week of November in the North and remain in good condition until March. In the South they do not become prime until about December 1st and commence to shed much earlier than in the North. The fur is not a very valuable one but there is a growing demand for the flesh which is used as food and in many places will meet with ready sale.

I recommend the No. 1 trap for this animal and those of medium strength of spring only, as the opossum's foot and leg is tender, and if the bones are broken the animal is likely to escape. They do not struggle much, however, and comparatively few escape from the traps.

I set my traps in the thick woods, usually in the gullies also along the edges of the woods, along fences, etc. The opossum is possessed of

no cunning whatever, and no special care is needed in setting the traps if this animal alone is expected, however, it is always best to use care in setting for the most stupid animals, as one never knows what animal may pass that way. Whenever possible I place the trap in a natural enclosure, such as a hollow in the side of a stump or tree, a hollow between two spreading roots, an opening among rocks or in a hollow log. Failing to find any such place I construct a small enclosure of stakes, bark, stones or pieces of rotten wood, whichever is most convenient, and set the trap in the entrance nesting it down and covering with whatever is found nearby.

The trap may be staked, stapled or fastened to a clog. For bait I use rabbit, fowl, muskrat or small birds of any kind. Bait may be fresh or tainted as the opossum is not particular. I have heard of many fancy sets and baits and have given some of them a trial, but find the method given above to be the most satisfactory.

Opossums will sometimes be caught in traps set for skunks, foxes and other animals and there are probably more of them caught in such sets than in any other. They may also be caught in wooden traps.

I have caught these animals in traps set on logs spanning the streams, also at the entrance of the dens, but if I were setting many traps for

opossums I would use the above method mostly.

The opossum makes a wandering, aimless sort of trail, quite broad for an animal of its size and the toes are turned outward in walking. The footprints of the average opossum will measure about one and one-fourth inch in diameter— that is, the front foot—the print of the hind foot being from one-fourth to one-half inch larger.

The Lynx.

CHAPTER XVI.

THE LYNX

THE Lynx family is a branch of the cat tribe and its members are found in various parts of the world, but it is the European and Canadian species that are of the most importance, when viewed from the hunters' and trappers' standpoint. There are two species in North America, namely, the Canada Lynx and the Bay Lynx or wild cat. The Canada Lynx is the most valuable and they are most sought by the trappers. This animal is found throughout practically all of Canada, Alaska and Newfoundland, also in all of the most northern states and in the Rocky mountain region extending down into Wyoming and perhaps still farther south. Those found in Newfoundland and Alaska are of slightly different varieties.

The Lynx, when full grown will measure about three or three and a half feet in length and the weight is from twenty to thirty pounds, but occasional specimens will weigh forty pounds or even more. They are very "cat like" in appearance but the legs are rather long, the feet

large and the tail very short. The feet are heavily furred and the toes connected with a web, the whole forming a sort of snowshoe, which prevents the lynx from sinking in the loose snow. The ears are small and pointed and tipped with a pencil of black hairs. The tail is also tipped with black. The general color in winter is a silver grey on the back, shading to white on the under parts. In summer they take on a reddish color. The fur is long and soft and there is a ruff of longer fur on the sides of the face, near the throat.

The young are born usually in May and there are from three to seven in a litter. The entire family will be found living in the same locality and although each will have its own particular route of travel, they frequently travel together along the border of certain swamps and occasionally the entire family will start off together and look for a better feeding ground. They live mostly in the swampy parts of the more open country, being rarely found in the great bush. In the west they are found in the timbered parts of the mountains. In the North, you will find their tracks leading along the edges of the swamps and alder or willow thickets.

Their food consists mostly of rabbits and partridge. The snow shoe rabbit falls an easy

victim. They have been known to kill small deer and caribou, but only in very rare instances.

There has been considerable controversy among naturalists regarding the courage of the lynx. From my own observations, I should say that they are very cowardly, as a rule, but all rules have exceptions. I know of two instances in which the lynx has stood his ground for a man, and in one case, for a number of men. This lynx was killed by an axe thrown by one of the men at a distance of twelve feet.

In traveling, the lynx usually walks, only running when in pursuit of some animal, and always traveling the same route. They are active all winter, but travel most in fall and spring. They become prime about the first of November and if the spring is late, will remain in good condition until the middle of April.

The European lynx closely resembles the Canadian in habits and appearance. Its general color is a dull reddish grey, mottled with black. In winter the fur is longer and lighter colored than in summer. It is found from the Pryenees to the Far North, and eastward throughout northern Asia.

As a rule, the lynx is easily taken with the steel trap, unless food is very plentiful, when they do not care for dead bait. Almost any trap will hold them as they do not struggle much, and

I have caught a number of them with the No. 1 trap, but because of their large feet, I would advise the use of a larger trap. The Nos. 3 and 4 traps are perhaps the best sizes to use.

There are various methods of trapping them but the most common, as well as the best is to set the trap in an enclosure, with bait. I prefer to make the enclosures of split wood, placing the split side inward. I make the pen about three feet in height, about two and a half feet long, wide at the top and just wide enough to receive the trap at the bottom. The pen should be well roofed with evergreen boughs to protect the trap from the snow, and the trap should be just inside of the entrance. If there is snow on the ground, I make a bed of green boughs for the trap to rest on. It is not necessary to cover the trap but I prefer to do so. The bait should be placed on a stick in the back of the pen.

Rabbit and partridge is the best bait, but it must be fresh, as the lynx does not care for stale food. Some scent should also be used as the lynx's sense of smell is not so highly developed as that of some other animals. Beaver Castor is perhaps the best, but fish oil is much used by the western trappers. Muskrat musk is also good.

The trap should be fastened to a stout clog. I use a small spruce or balsam tree, about three

inches thick at the butt and fasten the trap by stapling or by looping the chain around the clog, leaving some snags to prevent the chain from slipping over the end.

The rabbits are a great nuisance, they being found in great numbers in the northern swamps. The scent of the hands left there while setting the trap, also the fresh cutting, attracts the rabbit into the pen and it is sometimes difficult to keep the trap in working order until the lynx journeys by that way again. The best way I have found to keep them out of the trap is by dropping some dead brush in front of the enclosure, as the rabbits do not like to jump through the dead brush.

Squirrels and birds are also troublesome, and I have found it a good idea to place the bait well up under the roof of the pen so as to be out of sight of these creatures. I also place a small springy stick under the pan of the trap, which will sometimes prevent the squirrels and birds from springing it. I sometimes make a trap pen by standing up a number of small evergreen trees, cutting the boughs away on the inside. This is a very good method.

When lynx do not take bait well, some trappers make a long pen or passage, open at both ends and high enough so that the lynx can walk through easily. The trap is set inside and some

beaver castor or other scent is placed on a stick in the passage. Others put scent on a piece of red cloth and fix it in a pen of brush, setting the trap in the entrance.

As the lynx's eye is more keen than its nose, I have found it a good plan to hang a rabbit skin from a string near the setting, so that it will swing about in the breeze. This will attract the animal for quite a distance, and is a good method to use when setting traps along the shore of a lake, as the lynx walks the ice and will sometimes pass outside of scenting distance of the trap.

Lynx are easily killed by a blow from a stick but when caught in small traps it is safer to shoot them, using a small caliber pistol or rifle. Another good way is to choke them by tieing a snare to the end of a ten or twelve foot pole. Slip the snare over the animal's head, draw it tight and hold the pole; the lynx will die in a very short time. The advantage of this method is in the fact that the skin is kept clean and free from blood.

The track of the lynx resembles that of the cat but is much larger. A large specimen will make a track three and a half inches in diameter and the length of step is from sixteen to eighteen inches.

The Wildcat, or Bay Lynx.

CHAPTER XVII.

THE BAY LYNX, OR WILD CAT.

THE Bay Lynx replaces the Canada Lynx throughout the greater part of the United States. This animal is known to the fur trade as the wild cat and is also known in some localities as the Catamount and the bob-cat.

The true wild cat is not found in America, being a native of Europe and Northern Asia, and resembling the domestic cat, somewhat, in appearance. Such cats are also found in certain parts of the United States but they are only the descendants of domestic cats which have strayed into the woods and become wild, and are not the wild cat of Europe.

The Bay Lynx is found throughout the rough timbered portions of the eastern, northern and western States, also in the swamps and cane brakes of the south. The International Boundary is about the northern limit of its range. They are quite plentiful in parts of the south, also in the foothills of the Rocky Mountains where they have become so destructive to

sheep that the stockmen pay bounty on those that are killed.

The animal is somewhat smaller than the Canada Lynx, but resembles that animal in general appearance. It is about thirty inches in length, with a tail of five or six inches, and weighs from eighteen to twenty-five pounds, in some instances exceeding these figures. Its color on the back and sides is of a pale reddish brown, overlaid with grayish, the latter color being most prevalent in fall and winter. The throat is surrounded with a collar of long hair. The under parts are light colored and spotted and a few dark spots are also found on the sides. The tail is tipped with black and has half rings on its upper surface. The ears are also tipped with black hairs, but this tip is not so conspicuous as in the case of the Canadian Lynx. The hair is also shorter and coarser, and the feet smaller and less heavily furred.

The food of this animal consists of rabbits, partridges, sage hens, and any other small animals and birds which they can capture. They are fond of poultry and have been known to kill and devour the raccoon. As before mentioned, they are partial to mutton. In all probability they capture large numbers of mice, moles, prairie dogs, etc.

In the West, as in parts of the East the

wild cat dens in natural holes in the rocks. In the swamps of the South they no doubt, nest in hollow trees.

They are, as a rule, shy and retiring animals, but when brought to bay show considerable courage and fight desperately. The fur of the Bay Lynx is not as valuable as that of the northern lynx. It becomes prime in the north about the first of November; in the south three or four weeks later.

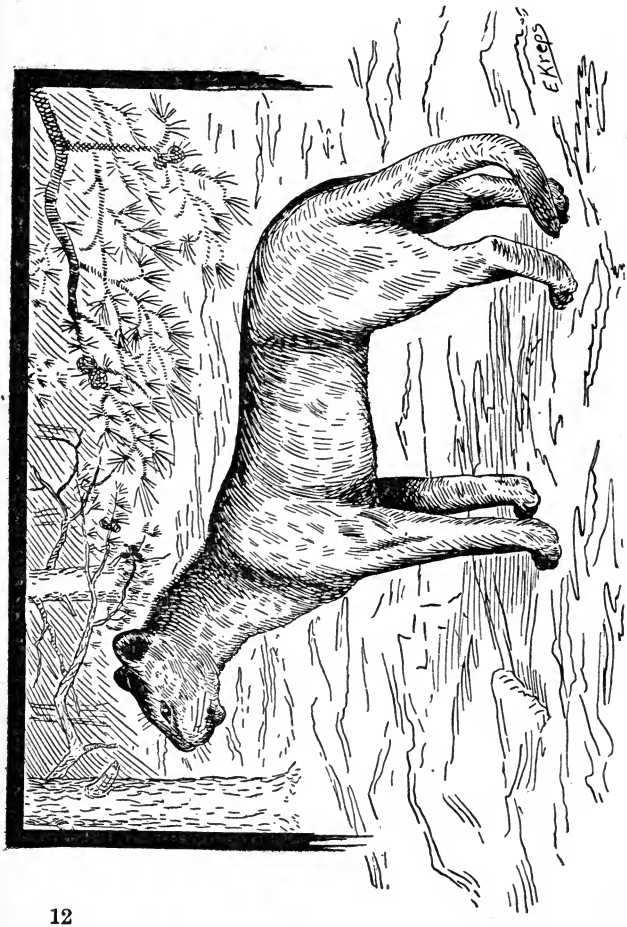
The wild cat resembles the Canada Lynx so closely in habits, etc., that I do not consider it necessary to give any special methods for capturing it. The bait methods recommended for the lynx will also do very well for the wild cat, and the same bait may be used. In the south it would probably be better to set in natural enclosures whenever possible. In the foothills of the Rockies the Bay Lynx is frequently caught in traps set for coyotes, although they may be captured as easily there as in any other section, and if the trapper wishes, he can set his traps in hollows in the rocks, or in enclosures of brush, cactus, etc.

Some trappers prefer to hang the bait above the trap, and it is a good way, but I think that the enclosure is more certain.

I would recommend the Nos. 2 and 3 traps for these animals. Although they may be held

at times in smaller traps, any trap having less strength than the No. 2 should not be depended on.

The track of the wild cat resembles that of the lynx, but is much smaller. The footprints will seldom measure more than one and a half inches in diameter, and the step is a trifle shorter than that of the Canadian Lynx.



The Cougar.

CHAPTER XVIII.

THE COUGAR.

WITH the exception of the Jaguar, which will average a trifle larger, the cougar is the largest representative of the cat tribe to be found in America.

This animal is known locally under various names. In the mountainous districts of the Eastern States, where they were once found in fair numbers, they were known as the panther or "painter" from a fancied resemblance to the panther of tropical Asia. In the far West they are most commonly known as the mountain lion, and in other localities as the cougar, while in the Southwest they are sometimes called the Mexican lion. Throughout the whole of South America they are known as the puma.

This animal has probably become extinct in the Eastern States, but they are still found in the South, from Florida, westward throughout the wild, swampy sections of the Gulf States, into the lowlands of Texas, and southward. In the West they are found in all of the mountainous portions from northern British Columbia

southward, and in South America are to be found as far south as southern Patagonia. They have at all times been more abundant in the West than in the East and are still plentiful in portions of British Columbia, Idaho, Wyoming, and Colorado; also in the Pacific Coast States, especially in northern California.

In size, the average, full grown cougar will perhaps measure seven feet in length from the nose to the tip of the tail, certainly not more, and large specimens will weigh from a hundred and fifty to a hundred and seventy-five pounds. Occasionally larger specimens are found, but they are exceptional. The tail will measure from two and a half to three feet.

The color of the cougar is usually of a yellowish brown on the sides, a trifle darker on the back and white on the throat and underparts. The tip of the tail is dark, almost black in some specimens. This is the prevailing color but some will have a grayish cast. While there is very little difference in the specimens from the various sections, some naturalists claim that the cougar of Florida and other parts of the South is a distinct variety.

Cougars prey largely on deer, also in some sections on the wild sheep and goats. They also kill small animals, and when pressed by hunger they will not hestitate to attack larger animals

than the deer; even the moose is sometimes killed by the cougar. They are very destructive to stock in many parts of the West, particularly to horses, and many of the Western States, as well as the stockmen pay bounty on cougars. In South America they kill large numbers of wild cattle.

Their method of securing game is by creeping cautiously to within springing distance, or by watching a runway from the branches of a tree, or a ledge of rock from which position they spring upon the unsuspecting victim, breaking its neck by a twist of the head. When they can get plenty of food they only suck the blood of the captured animal, and do not return to the carcass. When food is scarce they make a meal of the flesh and cover the remains. In such cases they may return for a second meal.

It was only after the panther became rare in the Eastern States that the fabulous tales of their daring, and their inclination to attack human beings, originated, and such stories are never credited by those who are acquainted with the nature and habits of the animal. While it would be an easy matter for the cougar to kill an unarmed man, they are by nature, timid animals, and not to be feared by human beings. While individual animals may attack man on rare instances, such occurrences are very rare,

and it is safe to say that nine-tenths of the "panther stories" have no foundation whatever. The western mountain men consider them very cowardly animals.

In the mountainous districts the cougars live in natural dens, or caves in the rocks, in places that are almost inaccessible to other animals. In the swamps of the South they make their home in dense and almost impenetrable thickets and canebrakes, where they make a nest of sticks, grass, moss and leaves.

The young animals are born in early spring, there being from two to four at a birth, but as a rule, only two. The mother animal displays considerable anxiety for the safety and comfort of her kittens.

There is no method known by which the cougar may be successfully trapped. Owing to their rambling habits one never knows where to place a trap for them, and as they prefer to kill their own game, they will seldom touch bait. As a rule they do not return to the carcass of their victim, but if one can find an animal freshly killed, it is a good plan to set a trap by the side of the remains, and in case the animal should return for a second meal, its capture is likely. Practically all of those which are trapped are taken in this way. The No. 4 Newhouse trap is used but the No. 4½ is better, for being a larger

and stronger trap it is more certain to hold the animal. The trap should be fastened to a heavy clog, and the trap and clog carefully concealed, for the cougar is wary and suspicious.

On rare instances when the trapper has been certain that there were cougars in the near vicinity, they have been captured by setting a trap in a natural enclosure, placing a fresh, bloody bait behind the trap, also by hanging the bait about five feet above a carefully concealed trap.

They are most commonly hunted by the aid of dogs, and in this way the capture is a comparatively easy matter. When pursued they usually take to a tree and remain there until the arrival of the hunter when a rifle bullet ends the game. The animal will take to a tree readily for any dog which has the courage to follow it.

The skin of the mountain lion is not valuable as a fur, and is used principally for rugs, but as before mentioned many of the states pay bounties on the animals, so that hunting them may be made a profitable business in certain localities.

The tracks of this animal resemble those of the wild cat but are much larger. The footprints will measure about four inches in diameter.

The Wolverine.

CHAPTER XIX.

THE WOLVERINE.

PERHAPS the most rare of all fur bearing animals, as well as the least known, is the wolverine. This animal belongs to the marten family and is the largest, strongest and most cunning of the genus; in fact, is claimed to be the most cunning and wary of all the furbearing animals, and among the trappers has an unenviable reputation.

It is strictly a northern animal and is found scattered over the greater portion of Canada and Alaska, ranging southward into the most northern portion of the United States. In the Rocky mountain region it is found as far south as Wyoming. They are not plentiful anywhere and are probably found in the greatest numbers in the Alaskan interior, Yukon, Mackenzie and northern British Columbia.

While the wolverine is classed among the martens it appears to be the connecting link between the martens and the bears for it is stoutly built and very bear-like in general appearance, also is a plantigrade animal, walking on the en-

tire sole of the foot. An average specimen will measure about thirty inches from the end of the nose to the base of the tail. The tail is about ten inches in length, exclusive of the long hair and is very stumpy and bushy. The fur is long and flowing and is fairly fine. The general color is a dull brown with black legs and feet and a black patch about the eyes. A spot or stripe of lighter color sweeps along the sides. The teeth are large and strong and the curved claws are white, contrasting sharply with the black fur of the feet and legs.

The wolverine makes its home in a burrow. As to the breeding habits of the animal, my observations have been limited and I can give no authentic information. Naturalists disagree as to the number of young and the time of birth. Some claim that the young animals are born in May, others put the time as late as December. As the other members of the marten family give birth to their young in April and May, I think it safe to assume that the young of the wolverine are born about the same time, and that the number would be from three to five in a litter.

The animal is a great traveler, straying sometimes thirty miles in each direction from its home. It is not a rapid traveler, however, and it is claimed that a man can easily outrun it.

The wolverine is also known under other

fancy names, the most common of which is "carcajou". In Europe it is called the "glutton" from its supposed gluttonous appetite. Among the Indians of the northwest it is known as the "mountain devil" and in British Columbia is sometimes called the "skunk bear."

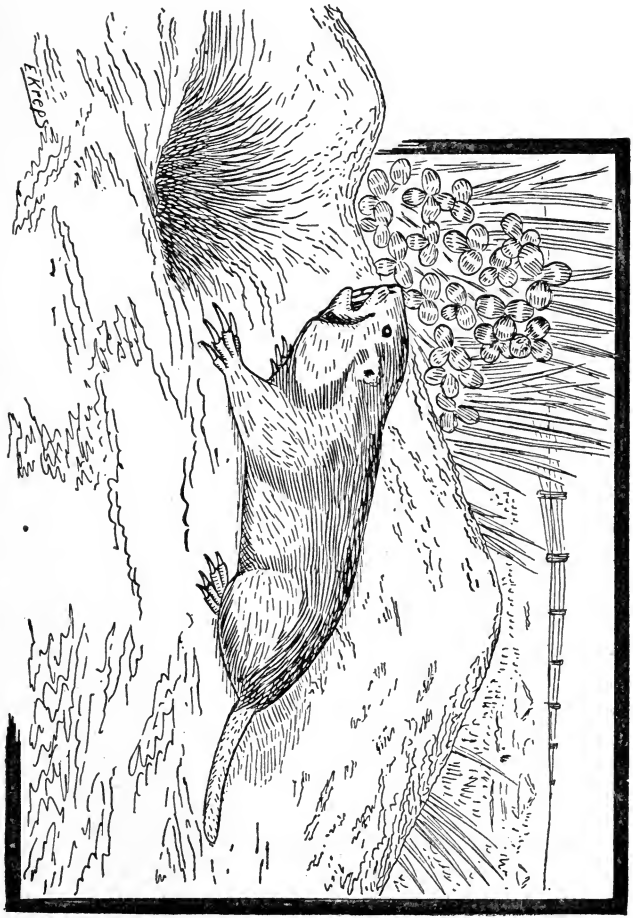
The animal really does bear some resemblance to the skunk in its appearance and actions, the most noticeable of which is its habits of raising its tail when disturbed or when it stops to listen to some noise. Sometimes it will stand on its hind legs in order to get a better view of some object which has aroused its interest.

The wolverine is not as active as the other members of the genus, but its strength and cunning fully compensate for all that it lacks in activity. It can seldom capture enough of game to satisfy its hunger, therefore it seeks out and robs the caches of other animals, also robs the traps of their bait and the captured animals. For this reason the animal is despised and dreaded by the trapper. Once one has found the trap line it will follow the trail to the end, destroying the sets and eating the baits and catch. What it cannot eat, it will carry away and conceal presumably for future use. It will also sometimes enter the trapper's cabin and destroy or defile all that it cannot eat.

Many strange stories are told of the animal's cunning and of its evil ways. While some of these tales are no doubt true, I feel safe in saying that the majority have no foundation whatever. There is no doubt that the wolverine is exceedingly wary and that it is a great mischief maker, but the fact that the animal is not well known, has led the nature writers to draw on their imaginations and these wonderful stories are the result. We hear of the animal decoying deer to its hiding place by dropping a bunch of moss for them to feed on, and then springing upon the unsuspecting animal from a nearby limb. We also read of the wolverine biting off the string of a set gun without discharging the arm, so that it could eat the bait without danger. That such stories are false goes without saying.

Not being plentiful in any one locality the animals are seldom trapped and what few are caught are taken when they are visiting camps or while robbing the traps of the bait and catch Trapping them at all times is difficult work, owing to the natural wariness of the animal. That the trap must be well concealed and that the animal must be taken when off its guard will be evident to all. The No. 4 trap should be used and only those which have strong springs, as the wolverine possesses great strength.

The animals are not sought by the trapper and he may consider himself lucky if there are none of them on his trapping ground. When they are found, the trapper's aim is to get rid of them and the most certain way appears to be by means of poison. When they visit the traps a fair portion of strychnine placed in the bait will usually bring the desired result.



The Pocket Gopher.

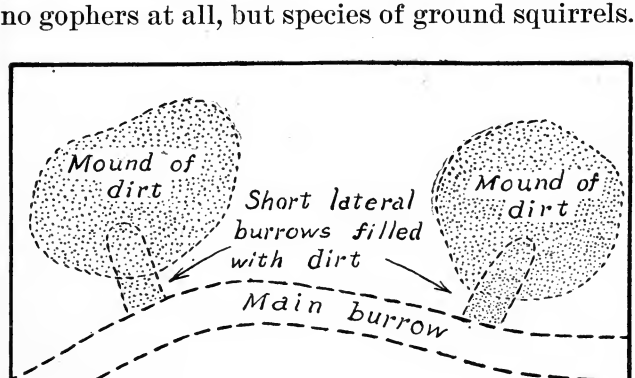
CHAPTER XX.

THE POCKET-GOPHER.

THE pocket-gopher is found throughout the Mississippi Valley, ranging westward into Colorado and Wyoming, southward into Mexico, and northward into the prairie region of Canada. They are also found in Alabama, Georgia and Florida. They appear to be most abundant in those states bordering on the Mississippi River. There are a number of different varieties, but as their habits are the same, a description of the Prairie pocket-gopher, will be sufficient.

This animal measures, when full grown, about eight inches from the end of the nose to the base of the tail. The tail is about two and a half inches long, and thinly covered with hair. The color is a liver brown, somewhat lighter on the under parts; the feet white. The legs are very short; the feet armed with large claws, adapted to digging. The head is large, no neck being visible. The eyes and ears are very small. The incisors are large and chisel shaped, for cutting roots. On each side of the face and neck

are large pouches, having no opening into the mouth. These pouches are not used for carrying dirt, as is commonly supposed, but are only used for carrying food. The animals known as the "grey-gopher" and the "striped-gopher" are no gophers at all, but species of ground squirrels.



Burrow of Pocket Gopher.

The gopher is a burrowing animal and is seldom seen above ground. They are working almost all of the time, during the spring, summer and fall, extending the burrows in search of food. They also work in winter, when the ground is not frozen, and it is supposed that they

also work under the frozen ground, when it is not frozen too deep. They are most active in the fall when they are storing up food for winter.

The burrows will be found from six to twelve inches beneath the surface of the ground, the usual depth being about eight inches. At irregular distances along the burrow, the animal makes a short branch passage leading up to the surface, where it deposits the dirt dug from the main passage, in the form of a mound. After the dirt is all thrown out, it closes the branch passage, packing the ground in solidly, so that the only visible signs of the burrow are the mounds of ground. There is a good reason why the animal should be so careful to keep the passage closed, for they have a number of enemies besides man. Its most dangerous enemies are, perhaps, the little spotted skunk or civet cat and the bull snake, as both of these creatures, once they get inside of the burrow, follow its course until they find their victim.

The food of the gopher consists mostly of roots of plants but they often cut the roots of fruit trees. They are particularly destructive to alfalfa, and the loss to farmers, caused by these animals, is considerable, not only from the plants destroyed by having the roots cut, but also from the plants buried under the mounds, and from the fact that the mounds interfere with

the cutting of the crop. The fur is of no value, but owing to the destructiveness of the animals, land owners are very anxious to be rid of them. In many places a bounty is paid on the gopher, so that they may be profitably trapped when fur-bearing animals are of no value.

The traps recommended for the gopher are the No. 0 steel trap and some of the various choker traps made especially for this use. In setting steel traps, select the freshest mound, and by examining closely, one can usually tell which way the dirt was thrown out, and will know on which side to look for the burrow. A handy tool is a slender, pointed iron rod, to use as a probe in searching for the burrow. Having located the passage, open it up and set the trap on the bottom, sinking it down until level. Cover it lightly with dirt, and close the hole by laying a small piece of board, or a shingle over the opening, covering with ground.

The trap should be fastened with a stick, and the same stick will serve as a marker, so that one can easily find the trap. A small spade or a heavy garden trowel will be needed for digging and for convenience, the traps, stakes, etc., may be carried in a large basket. The regular gopher traps, mentioned above, are more easily set than steel traps and printed directions for

setting usually accompany the traps. They should be set at one side of the burrow, on a level with the bottom and with the mouth of the trap just even with the side of the passage. Just a little light should be allowed to penetrate from behind, and all other parts should be closed, so as to exclude light.

The gopher, in coming along the passage, sees the light and goes to investigate, when it will be caught in the trap. If too much light shows up, he does not go close to look at it, but immediately brings a load of dirt and proceeds to close the hole, thus burying the trap. All loose dirt should be removed from the burrow before setting the trap, as otherwise the gopher will gather up the dirt as it approaches the light, and shove it into the trap.

The Cottontail Rabbit.

CHAPTER XXI.

THE RABBIT

WHILE the rabbit is classed among the fur-bearing animals, the skin having a slight market value, very few of the trappers ever market the skins as the price is so little that trapping the animals for their fur would not be a lucrative business.

The flesh is much used as food by the northern hunters and trappers, and also as bait for traps, and it is well for the trapper to know something about the animal and how to capture it.

Properly speaking there are no rabbits in North America, the animals known by that name being classed by naturalists as hares, but the name is so universally used that it would be useless now to try to bring the true name into general use.

There are many species, one or more of which will be found in almost every locality of North America, but the most important species are the common cottontail, the jack rabbit and the snowshoe rabbit, or varying hare. Of these

there are many varieties, but they are so similar in appearance and habits that I do not consider it necessary or advisable to go into detail in describing them in a work of this kind.

Rabbits belong to the class known as rodents or gnawing animals, and are distinctly different in structure from all other animals of the class. The long hind legs, long ears, small tail and soft fur is characteristic of the genus.

The common cottontail is found in almost all parts of the United States, in certain parts of the north only, being replaced by the snowshoe rabbit. They are smaller than the snowshoe and jack rabbits and are of a grayish brown on the back and sides shading to white on the under parts. The fur is a reddish brown in summer.

Their food consists of grasses, fruits and vegetables, bark, and the leaves of evergreen shrubs such as the laurel. They are especially fond of fruits, sweet apples being a favorite food, and are also partial to cabbage.

Their favorite haunts are the brushy, wooded bottom lands but they are also found on the hills and mountains; in fact, in almost any place where they can find food and shelter.

The snowshoe rabbit replaces the cottontail in Canada and the most northern portions of the United States. As before mentioned they

are larger than the common rabbits and like the northern weasel the color of their fur varies with the seasons. The summer coat is a reddish brown, but when the cold weather comes on in the fall they commence to take on a white color, the fur of the ears and legs being the first to change and in a few weeks the animal will be perfectly white. This is nature's provision for the animal's protection, and their color in winter is so nearly like that of the snow that when sitting under some log or clump of brush they are almost invisible. They have many enemies, being preyed upon by all the carnivorous animals, also by such birds as the hawk and owl, but as they are exceedingly prolific their numbers increase rapidly.

Every few years, perhaps at regular intervals, but of that I am not certain, some disease makes its appearance among them and they die off rapidly. Some naturalists believe that this is caused by inbreeding as the rabbit's circle of acquaintance is comparatively small, and his knowledge of the country and the ground covered by his wanderings is limited to a very small area.

The food of the snowshoe rabbit consists mainly of grasses in summer and the bark of certain young growths in winter. They are very fond of salt and wherever there is a trace of it to

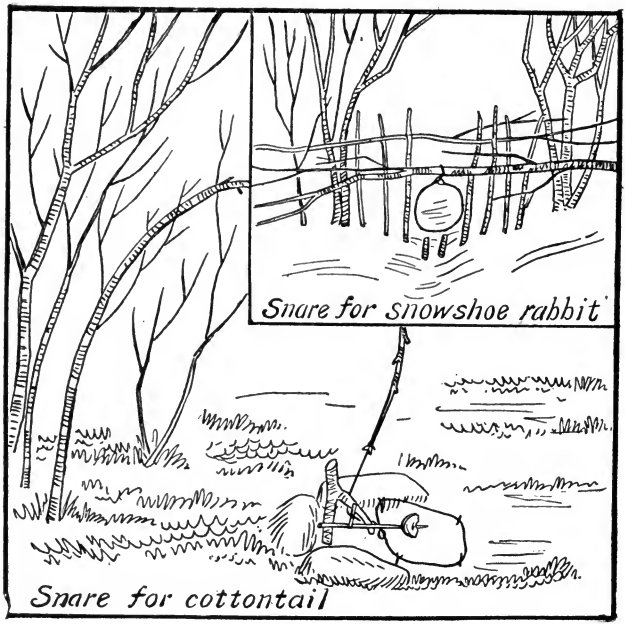
be found, they will come nightly and dig up the soil in order to procure it. The northern settlers who use large numbers of these animals for food sometimes make a salt lick for the rabbits and watch for the animals in the early evening.

The feet of the snowshoe rabbit are very large and are heavily furred, forming a sort of snowshoe which accounts for its common name. They are very methodical, running the same route so often as to form a well defined trail, quite common in the northern swamps and hazel thickets. These trails are followed after the snow falls and become beaten several inches in depth.

It is from the skins of the snowshoe rabbit that the northern Indians make the wonderful rabbit skin blankets. The skin is ripped down the back of the hind legs and is drawn off whole and while still fresh is cut into one long strip averaging an inch in width. Immediately after cutting, the strip rolls up leaving the outside covered with fur and resembling a fur rope. These skins are wound into a ball and kept frozen until the desired number has been secured when they are woven into a frame, the ends being sewed together. It makes the warmest bed covering known, and is used universally by the northern trappers. It also was a great comfort

to those who went into Alaska and Yukon in search of gold.

The jack rabbit is found mostly on the west-



Rabbit Snares.

ern plains and is the largest of the American hares. They resemble the ordinary rabbit in structure, but the ears are very long and the tail is more like that of the deer. In running

they make long leaps, all four feet hanging straight down, presenting a singular appearance.

Rabbits are seldom trapped with steel traps, but almost every country boy knows how to take them in box traps baited with sweet apples. The cottontail may also be taken in a spring pole snare, such as shown in the cut. The noose is made of twine and is about ten inches in diameter. When carefully made they are almost certain in action. They should be baited with sweet apple or cabbage.

The snare used for the snowshoe rabbit is a very simple contrivance. The white trappers use No. 20 brass wire, doubled and twisted with a small loop on one end, and made into the form of a slip noose.

The snares are set on the trails, the bottom of the noose being about four inches above the trail and the loop, about four inches in diameter, is attached firmly to a brush placed horizontally over the path. A short stick is set upright under the noose and others are placed on either side of the snare. When properly arranged the noose will take the animal by the neck when it attempts to leap through, and it will be choked by its struggles.

The Indians make the snares of light linen cord but with the white man this method is a failure as the rabbit will invariably stop and bite

the cord. I do not understand why they do not bite the snares set by the Indians.

Where tracks are plentiful and good trails cannot be found I have caught them by placing a few fresh twigs of birch or tamarack on each side of the snare. The rabbit is certain to find them and after eating those placed on one side it will attempt to leap through the noose to reach the others, which, of course, is the end of poor "bunny". The smallest and tenderest shoots should be selected for bait and only two or three should be placed at a snare.

At other times I have made a fence of small evergreen trees where signs of the animals were numerous, and have fixed snares in the openings along the obstruction. This is also a successful method.

I have never learned of any method of trapping or snaring the jack rabbit, but believe they could be trapped successfully where they visit the farms and gnaw the bark from fruit trees as they do in some parts of the west.

CHAPTER XXII.

TRACKS AND SIGNS.

OLD and experienced trappers can read the signs of the forest and stream with a degree of accuracy that to the amateur is surprising. In this way he can make a fair estimate of the number and kinds of fur-bearing animals found in a locality, while the novice would see nothing, or if he did see the tracks and signs he would not be able to distinguish them, one from another.

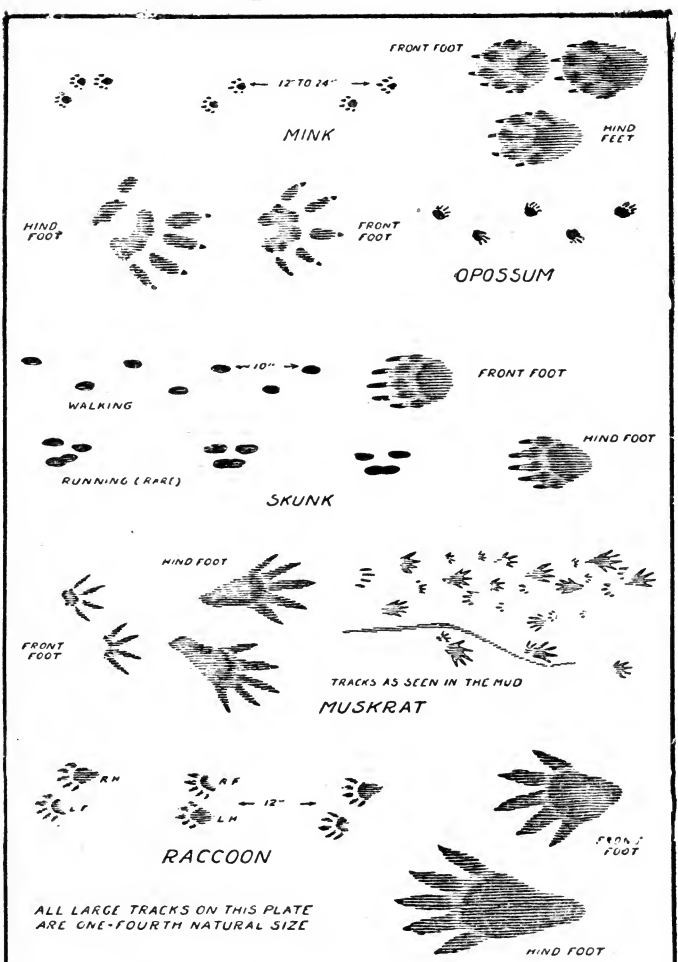
To be able to read the signs accurately is essential for successful hunting and trapping. The expert trapper will know instantly, on seeing a track, just what animal it was that passed that way, and by knowing its habits will know about when it is likely to return, and how to place a trap for its capture. He can also tell with fair accuracy at what time the animal passed that way, and frequently, will know whether it was a male or female; whether it was looking for food or a place of rest, whether it was on its regular route of travel and where it

was going. To the novice all of these signs are unintelligible.

The art of sign reading can be learned only from experience. While the writer can distinguish the signs and tracks of the fur-bearing animals, to put this knowledge in print is exceedingly difficult. However, I will endeavor here, to describe the tracks of the fur-bearing and game animals, and believe that the description will be of value to the amateur.

Before the coming of the tell-tale snow, and the myriads of tracks which then appear, the stream with its muddy or sandy shores is perhaps the most promising place in which to look for signs. In the mud alongside of a pool of water, the tracks of that busy little animal the muskrat, can be seen.

The trail of this animal is accurately shown in the drawing. When seen at the water's edge, and only a few tracks are visible, the trail appears irregular, but if one can see where it has walked for some distance, it will be noted that the animal has a regular step, some five or six inches in length, and there is also the trail of the dragging tail, most plainly seen in the soft muddy bottom of the still, shallow water. In the snow the track will appear the same. Only the prints of the hind feet are visible, the front feet being very much smaller, and the print being



Tracks of Furbearing Animals.

obliterated by those of the hind feet. When the animal is running the prints of all four feet are readily discernible. The print of the hind foot will measure about two and a fourth inches in length if the full impression of the foot is to be seen.

In addition to the tracks other signs may be seen. Where the animals are found in fair numbers they will have well defined trails leading from the water. Where the bank is steep the trails are sometimes worn an inch or more in depth, owing to the muskrat's habit of sliding down the bank, which habit is not practiced in play, but for convenience. Other signs are the droppings on the logs which extend into the water; the dens with an accumulation of grass at the entrance; also the scratch signs on the bank, the feed beds, houses, etc.

All signs are plentiful in early fall, and at such times the novice is likely to overestimate the number of animals, as the muskrat is very active at that season.

The signs of the beaver are very similar to those of the muskrat, but the tracks are much larger, and owing to the fact that the level of the water in the vicinity of a beaver lodge, is raised far above the muddy shores, by the dam the tracks are seldom seen. However, the house and dam with the fresh cut wood, and well used trails are all of the signs that are needed. Old

houses and dams are found frequently, but if there is no fresh cutting about, one may be certain that the house is uninhabited.

One of the most puzzling things to the novice is to know the number of inmates, that is, whether or not it is a full family, but methods of determining this are given in the chapter dealing with this animal. In the North the beavers are ice bound during the winter months, but occasionally one may find them emerging from the water at some springhole near the lodge or dam, and at such times the tracks may be seen in the snow.

The trail of the otter is unmistakable, owing to its peculiar, floundering, sliding mode of travel. It is seldom seen except in the near vicinity of the water. In the snow, the track is well defined and resembles the trail made by dragging a small log, the footprints in the bottom of the trail being very distinct. The length of jump is from four to eight feet, depending on the condition of the snow, and the footprints will measure about **two inches in diameter.**

They travel under the ice whenever possible and one may see frequently where the otter has bored into a snow bank at the water's edge, trying to locate a weak spot in the ice. When they have been working under the ice for some time one may find where they have been entering at,

and emerging from the spring holes near the shore. At such places the snow will be packed down solidly and remains of fish may be found.

When there is no snow, one may learn of the most frequented localities by the number of slides and landing places. At the landing places the droppings will be found, and they may be distinguished from those of other animals from the large proportions of fish bones and scales.

Another animal which will be found frequenting the waterways is the mink. The track of this little animal may be found along the muddy shore, where the steep bank crowds it down to the water's edge. At other times it will travel several rods from the water, and after the ice forms, will run on the ice, seldom going far from the shore. Its method of travel is an easy lope, and the footprints are nearly always in pairs about three inches apart one somewhat in advance of the other, and separated by a distance of from one to two feet. The footprints measure from one to one and three-fourths inches in length. They are sometimes found entering the water at spring holes in the ice, and at open places in the rapids.

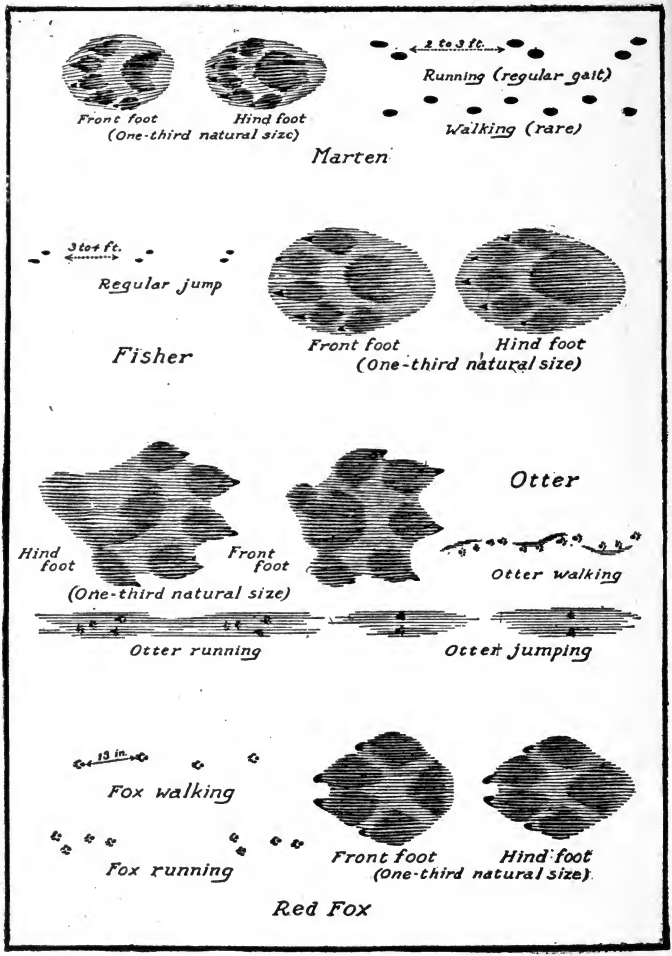
About the outlets or inlets of lakes and ponds, and at the log-jams or drifts on the stream one may sometimes find small, slender pointed droppings on the stones or logs. These

sign will show unmistakably that the route is regularly used by at least one mink.

The track of the weasel is similar to that of the mink, but is smaller, but as the weasel is not a water animal, its tracks are more likely to be seen along the fences and where logs and rocks are plentiful. Here the trail will be found leading here and there in an aimless sort of way, and entering every nook and corner, where the persistent little hunter thinks it may find a sleepy "bunny" or some other animal or bird. The length of jump is from sixteen to twenty inches and the footprints measure about one or one and a fourth inches in length.

The marten has a similar method of travel and makes a track like those of the mink and weasel, being a little larger than the track of the mink and the footprint is broader and more rounded; the foot being heavily furred the toes do not show so distinctly. The trail will be found leading through the gullies and depressions of the heavily timbered places, and occasionally they also travel on the ridges.

Few signs are seen when the ground is bare but in the dark, sheltered ravines, the droppings may sometimes be seen on the logs, resembling those of the mink, but somewhat larger. Sometimes one may also find where they have killed a bird or rabbit.



Tracks of Furbearing Animals.

There is practically no difference between the track of the fisher and that of the marten except in size. The footprints of the fisher are perhaps a trifle more distinct, and will measure from two to two and a half inches in length, the distance between each set of tracks being from two and a half to four feet. The tracks of both the marten and the fisher are found in the same kind of places, but the fisher is more of a rambler and more given to rambling in the open country. When the ground is bare one may see occasionally where they have killed and eaten rabbits, in which case very little will remain except the fur and toes of the victim.

Although the skunk is a member of the great weasel family, its method of travel is decidedly different from that of the weasel, for it seldom lopes, but has a slow, measured walk. The length of step is about five or six inches, and the footprints are from one to one and three-fourths inches in length. The trail is rather broad, and if the snow is deep and soft the animal sinks deeply, so as to make a trail with its body; however, the skunk seldom travels when the snow is in that condition.

Signs of the skunk may be noted also in summer and early fall. Occasionally one will find in the field, small excavations varying from an inch and a half to four or five inches in depth,

nicely rounded and funnel shaped. This is the work of the skunk, and it was hunting for insects or grubs.

The most conspicuous signs, however, are the dens, which may be found along the steep, gravelly hillsides. Although the woodchuck makes a similar den, one may be able to distinguish them, as a rule. If the den is inhabited by skunks one will usually find black and white hairs clinging to the mouth of the den, also will be likely to find a pile of droppings somewhere near, and to one side of the entrance.

The walk of the opossum is similar to that of the skunk, but the trail is broader, the footprints more spreading and the toes turned outward. The feet being naked, the toes show very plainly. Their tracks are only seen after a warm night, when the snow is melting, and the dens are seldom found unless one can follow the trail. The footprints will measure from one and a fourth to two and a half inches in diameter.

The tracks made by the animals of the dog family, the fox, coyote and wolf, are all similar, practically the only difference being in size. The foxes make the smallest tracks, that of the red fox being about two or two and a fourth inches in length and the length of step is about fourteen inches. The female makes a narrower track than the male, the same being true of many

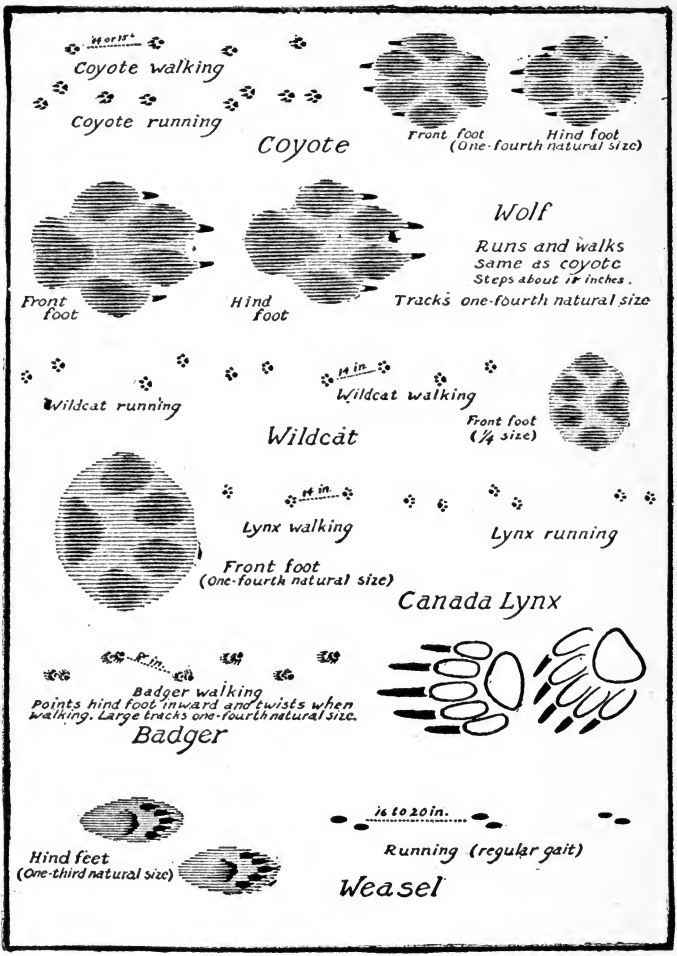
animals. There is no difference in the tracks of the silver, cross and red foxes, they being all of the same variety, but the gray fox makes a shorter and rounder track, easily distinguished from that of the red fox.

In early fall one may see the droppings of the fox along the old wood roads and stock paths, and they may be distinguished from those of the dog by the remains of apples and other fruits which are found there. Occasionally one may see the tracks in the mud or dust of the old roads in the woods, and sometimes the dens are to be found.

As before mentioned the track of the coyote is identical with that of the red fox, except that it is larger. The length of step is about sixteen inches and the track will measure about two and one-half inches in length by two inches in width.

The track of the timber wolf is larger, that of a full grown specimen measuring about three inches in width by four in length, the length of step being about eighteen or twenty inches.

As the tracks of the dogs are similar so also are those of the cats, the wild cat, lynx and cougar, or mountain lion, the only difference being in size. The two first named are plainly shown in the drawings, and as will be noted, that of the wild cat is the smallest, and will measure



Tracks of Furbearing Animals.

about two inches in diameter with a step of about fourten inches.

The lynx makes a step of about the same length and the footprint of a large one will be from three to three and a half inches in width.

The cougar makes a larger track than the lynx, otherwise there is no difference.

Occasionally one may find where these animals have killed game; the lynx will eat all but the feet of a rabbit. The droppings may also be seen at times. They resemble somewhat those of the fox, but are slightly larger, and never show remains of fruit, as the lynx never eats vegetable food.

Along the streams and shores of the lakes and ponds one may see in summer and early fall the tracks of the raccoon, where the animal has traveled the strip of mud at the water's edge, looking for frogs and fish. One may trace the animal along the stream and will find that at times it has waded in the shallow water, and then again has gone the lope along the water's edge, or, perhaps has made a side journey to some cornfield. At such places if coons are plentiful, one may find a trail leading through the fence into a field. In parts of the South where these animals are abundant, trails may also be found along the ponds and swamps.

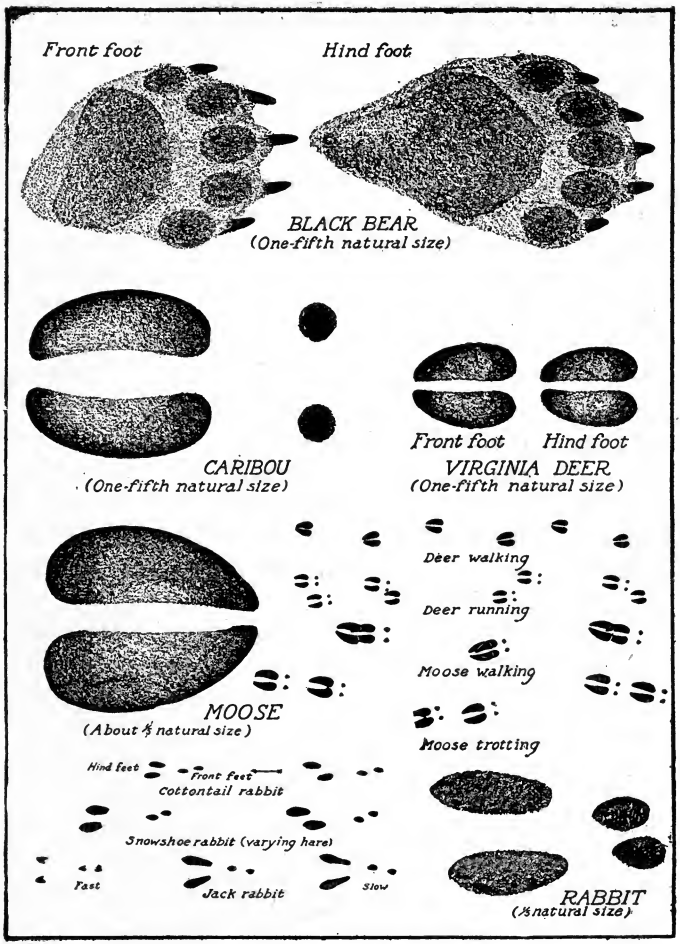
The coon belongs to the bear family, and

like the bear steps on nearly the entire bottom of the foot, instead of the toes only, as do the cats and some other animals, therefore, the footprint is usually long and narrow, and the foot being bare on the bottom, the long, slender toes show up distinctively. The animal has the loping method of travel, like the mink and weasel, but shows the print of a hind foot beside that of the front foot, the right and left alternating. The prints of the hind foot will measure from three to four inches in length, when the entire track is visible.

One is not likely to mistake the track of the bear, as it is the largest of the furbearing animals. As far north as Pennsylvania, its tracks will occasionally be seen in the snow, but north of that tier of states, the bears seldom move about after the coming of snow. The tracks may sometimes be seen in the mud and wet moss of the northern swamps, also on the shores of the lakes and along the streams.

The bear has a shuffling mode of walking and turns its toes outward. It is fond of walking on logs and will do so frequently, where fallen timber is plentiful. The track of a large black bear will sometimes measure eight inches in length, and that of the grizzly bear will be much larger.

Although the tracks are not often seen,



Tracks of Game Animals.

other signs are to be found, such as logs and stumps, torn open by the bear in its search for ants, etc., small poplars broken down in order to secure the young leaves, claw marks on chestnut and black gum trees, overturned rocks, and those most noticeable signs, the marked trails, which are mentioned in the chapter describing this animal.

While the deer are not classed among the fur-bearing animals, they are interesting to all trappers, and I have shown drawings of the footprints of the common deer, the moose, the caribou, and the three most common species of rabbits, namely; the common cottontail, the snowshoe rabbit, or varying hare, and the jack rabbit. The tracks shown in one-fifth size are of the cottontail.

As will be noted in the drawings of the deer tracks, that of the hind foot is narrower and more pointed than that of the front. The doe also makes a smaller and more slender track. The average track will measure about two and a fourth inches in length. The moose makes a similar track, but it is much larger and will measure about four and a half to five and a half inches. The track of the caribou will average somewhat smaller than that of the moose and is of decidedly different shape. It is not so pointed, and the hoof being split much higher, it spreads

out more, also the prints of the two small toes on the back of the foot are to be seen in nearly all cases, while the moose does not always show them.

Almost everybody is familiar with the track of the rabbit, but I have shown those of the three species mentioned, mainly to show the difference in size. The feet being furred heavily, the prints of the toes seldom show, except on hard snow.

Some of these tracks were drawn from memory, but others were sketched from the actual trails. On the whole, I think they will be found to be accurate, at least near enough to enable anybody to distinguish the trails of the various animals, and I think that the descriptions and illustrations will be of value to the amateur trapper when looking over his territory and locating the runways of the animals that he proposes to catch.

CHAPTER XXIII.

HANDLING FURS.

TO know the habits and the nature of the various animals and to know how to catch them is not all that is essential for success, but the trapper must also know how to skin the various animals and how to cure the skins and prepare them for market.

The loss caused the trapper by the lack of this knowledge is considerable; many skins because they have not been fully cured reach the dealer in a tainted condition, others are not fully stretched and are graded "small" and some do not have the proper shape. Some are not cleaned of flesh and fat, do not have the tail bone removed, have not been kept clean or have been badly damaged in killing or skinning, all of which has a tendency to decrease their value.

I have seen the skins of raccoon, killed before they were prime, and stretched on the side of a barn where the glare of the sun burned the life out of the skins, rendering them worthless. I have also seen skunk and mink skins drawn over the end of a thick board roughly fashioned

with an axe, and hung up by the nose, the weight of the board drawing the head out until it resembled the finger of a glove. The trapper who handles his catch in that way can never expect to receive full value for his furs.

There are two ways of skinning fur-bearing animals, namely, "casing" and skinning "open". The weasel, mink, marten, fisher, fox, opossum, muskrat, civet, skunk, wild cat should be cased. The raccoon, bear, beaver, badger, cougar, wolf, wolverine and coyote should be skinned open. Some dealers prefer to have southern raccoons cased.

To remove a skin by the first mentioned plan, cut it loose around the feet and rip down the back of the hind legs, to and around the vent. Peel the skin carefully from the hind legs and skin the tail by slipping a split stick over the bone, when by gripping the stick with the right hand with the bone of the tail between the second and third fingers and holding the animal with the left hand, the skin may be stripped off easily. Draw the skin downward from the body, keeping it as clean of flesh and fat as possible. To facilitate this process the animal may be suspended from the limb of a tree or other projection by looping a strong cord around the hind legs after they have been skinned. The skin should be drawn from the front legs and when

the ears are reached they should be cut off, cutting downwards towards the head. The skin should be cut loose about the eyes and nose, and it will then be in the form of a long pocket, fur side in.

The weasel, mink, marten, fisher, fox, skunk, civet cat and wild cat should be skinned in this way. The otter must have the tail ripped open its entire length on the underside, and as they are a difficult animal to flesh, it is best to skin them clean with a knife, leaving no flesh or fat adhering to the skin. The muskrat and opossum should also be cased, but as the tails of these animals have no fur they should not be skinned, the skin being cut loose about the base or where the fur ends.

Some trappers do not use much care in removing the skin from the head of the muskrat, but simply pull it off by main strength. This leaves the flesh of the head remaining on the skin and a collection of such skins will usually be graded low and the skins will average a few cents less than when properly handled.

To skin an animal "open", rip the skin on the belly from the point of the lower jaw to the vent, down the back of the hind legs and on the inside of the front legs across the breast to the point of the brisket. Animals that are intended only as furs may have the feet cut off, but bears,

mountain lions, wolves and wolverines should have the feet skinned out to the ends of the toes, leaving the claws attached to the skin. This increases their value for mounting or for rugs. The skin should be peeled from the body, using the knife whenever necessary.

In skinning the beaver, rip the skin from the point of the chin to the vent and around the base of the tail and cut off the feet, but do not rip the skin of the legs. Skin the animal perfectly clean using the knife everywhere, as it is almost impossible to flesh a beaver after skinning. Not a particle of flesh or fat should be allowed to remain on the skin.

After all burrs, lumps of mud and blood clots have been removed from the skin it is ready for fleshing. For fleshing all cased skins prepare a narrow tapering board of sufficient length to accommodate the longest skins and plane it perfectly smooth, rounding the edges slightly. Draw the skin over this board flesh side out and scrape all flesh and fat from it, using some blunt instrument, such as a square edged knife or a hatchet. Turn the skin occasionally and do not flesh on the edges of the board or you may score the skin; be careful not to damage it in any way. Always turn the fur side out before laying it down, so as to keep it perfectly clean.

Open skins, if they have not been skinned

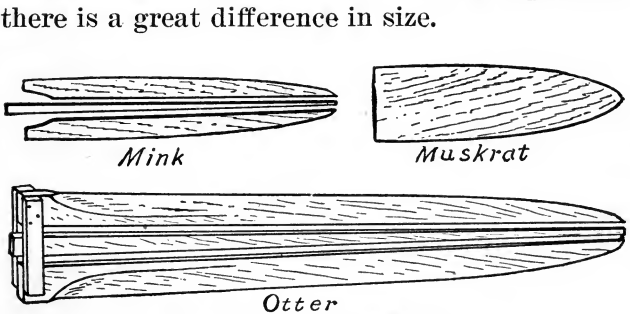
clean, are more readily fleshed after they are stretched.

A good supply of stretching boards of various sizes should be made in advance of the trapping season. Soft pine, poplar, basswood, or cedar boards are best, and old dry goods boxes make excellent stretching boards. They should be free of knots and should be planed smooth so that the furs may be removed easily after they are dry.

For mink the boards should be from 26 to 34 inches in length and from 3½ to 4½ inches wide at widest part, and about ½ inch narrower at the shoulders from which point it should taper gracefully to the head and end with a rounded point. For marten, the boards should be a trifle wider. For the average fox or fisher, the board should be 4 feet long, about 5¼ inches wide at the shoulder and 6½ at the base. For the otter the board should be about ½ inch wider and a foot longer. The average lynx will require a board about 7½ inches wide at the shoulder and 9½ inches at the base, by about 5 feet in length. For large muskrats the board should be two feet long by 6 inches wide at the base, ¾ inches narrower at the shoulder and with a flat iron shaped head, but more rounded at the nose. One should have several smaller sizes also. For skunk and opossum the boards should be about 6 inches

wide at the shoulder and 7¼ inches at the base, 28 inches long.

These dimensions are for the average animals, but it should be remembered that the sizes vary greatly in the various parts of the country. In the case of the skunk and the mink especially, there is a great difference in size.



Canadian Pattern Stretching Boards.

For convenience and good results I advise ripping with a saw, a narrow wedge from the center of all boards except those intended for muskrats. In this way one can stretch the skins to their full size and they may be more easily removed from the boards, after the wedge is

withdrawn. For large boards to be used for lynx, otter and animals of a similar size, I fasten two short strips to the base of one piece of the board, as shown in the cut. This stiffens the stretcher and prevents the pieces from turning in the skin. All boards should be beveled on the sides, leaving the edges thin, round and smooth.

The boards shown are of the Canadian pattern used universally by the Canadian trappers both Indian and white, and recommended and approved of by such large dealers as the Hudson's Bay Co. The tendency among trappers of more southern districts is to use a less tapered board with a more rounded point.

The skins should be stretched as soon as they are fleshed. In using the three piece board slip the two halves into the skin, the flesh side being out and fasten the hind legs with one or two small nails in each, then insert the wedge and draw down all slack parts and fasten with nails. Be sure to get the back on one side of the board and the belly on the other. Draw up the skin of the lower jaw and fasten with a couple of tacks or small nails. In the case of the lynx it is advisable to slip a narrow board into each front leg and a small incision should be made in the tip of the tail of all animals, to allow the moisture to drain out and the tail to dry.

The tail of the otter should be stretched out to its full width and well fastened with small nails. Some trappers also split the tail of the skunk for about one-half of its length and fasten it in the same way.

The proper way to stretch open skins is by lacing them with twine in a hoop or frame. The beaver should be stretched round, and a hoop is most convenient. My method is to fasten the skin in the hoop at four points and then with a large sacking needle and strong twine stretch out one quarter at a time. I use a separate twine for each quarter, sewing thru the edge of the skin and around the hoop, tying the end with a loose knot. In case I find that any part is stretched too much or not enough, it is a simple matter to untie the string and give it a little slack or take up a little as the case requires.

The raccoon should be stretched nearly square and all other skins to their natural shape. A square frame is most convenient, and the method employed may be the same as for beavers. Open skins which have not been fleshed, should have all of the flesh peeled off after they are stretched and then it will frequently be found necessary to re-stretch them but this is not difficult when using the twine.

All furs should be dried or cured in a cool, airy place. They should never be allowed near the heat of the fire as they dry rapidly and become brittle and unfit for use. In camp they may be dried in some corner, removed from the fire but they are likely to take on a dirty yellow color from the smoke, and it is better to have a shelter for them on the outside.

Furs should not be allowed to remain a long time on the boards. As soon as they are sufficiently dry to prevent shrinking or wrinkling they should be removed. The lynx and all species and varieties of foxes should be turned with the fur side out as soon as they become dry enough, and if the skin has become too dry to turn, it may be dampened slightly on the stiffer parts by placing a damp cloth over it. A very little will suffice and one must be certain to allow the skin to dry out thoroughly after turning. It is best to watch the skins closely and not allow them to become too dry before turning. Some trappers turn the skins of other animals, but with the exception of those mentioned it is better to leave the fur side in.

When shipping the furs they should be packed flat and bound tightly. Those having the fur side out should be kept separate from the others so that the fur will not become greasy. I sew the skins in burlap and put a card bear-

ing my name and address inside of the package; also tie two shipping tags on the outside.

Furs handled by the above methods will always command good prices and I never have any cause for complaint if I ship them to reliable dealers, but when furs are badly handled, damaged in killing or afterwards, or unprime, one cannot expect the highest market price.

CHAPTER XXIV.

STEEL TRAPS

IN the preceding pages I have made frequent mention of the Newhouse and other brands of traps and the work would hardly be complete without a description of these traps.

The Newhouse traps were designed by Sewell Newhouse, a resident of Oneida Co., New York, sometime prior to the year 1840 and the first of these famous traps were manufactured by the inventor in a little blacksmith shop, all of the work being done by hand.

These traps were traded to the neighboring Indians and gradually became famous throughout the country. Early in the fifties, Mr. Newhouse moved to Kenwood, in Madison County and established a larger shop. It was at this time that he joined the Oneida Community and as the demand for the goods soon exceeded the output, the firm decided that the business must be enlarged and accordingly a small factory was erected.

The business proved prosperous and it was

found necessary to enlarge the plant from time to time in order to increase the output and supply the demand which was increasing rapidly as the traps became well known, and today these people are the largest manufacturers of steel traps in the world.

Great care is used in the tempering of the springs and it is a fact well known to the users of this goods that the Newhouse spring is more reliable and more durable than any other.

The nearly perfect state of the Newhouse trap as it is made at present, has only been reached after years of study and experiment and many of the improvements have been brought about by the trappers themselves, with whom this firm has a large correspondence. They are always pleased to receive any suggestions for the improvement of their traps.

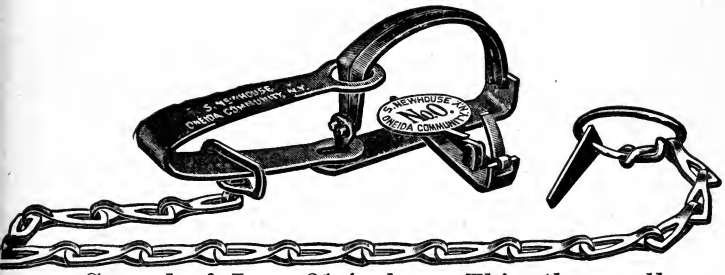
Although the Newhouse is a cheap trap, quality considered, it was soon found necessary to manufacture a line of cheaper traps and several styles were placed on the market. These were remodeled and changed in various ways to meet the demands of the consumer, and the names were changed with the style.

Those made at present are known as the "Hawley & Norton," the "Oneida Jump" and the "Victor". The Hawley & Norton is made in the

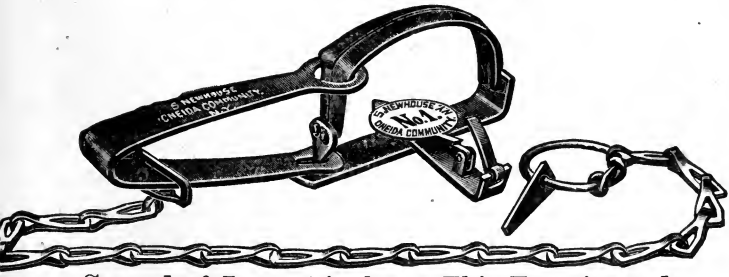
same style as the Newhouse, but is lighter. The Victor is also made in this style and it is safe to say that it is the most popular trap on the market. More of them are used than of any other brand and being so cheap they are especially liked by the beginner and by those who do not make trapping their leading occupation. In thickly settled districts where traps are often taken by thieves, many trappers prefer to use these cheaper grades of traps.

The Oneida Jump trap is a distinct departure from the Newhouse pattern. It is a high grade trap but very light and its shape allows it to be placed where an ordinary trap could be set only with difficulty. Instead of having the long bow spring as in the other styles it has a short spring located inside of the jaws and under the pan, and it is attached to one end of the bed plate of the trap. This makes the trap very compact and it takes up very little room either when set or sprung. The traps have been on the market a comparatively short time but they have already become quite popular.

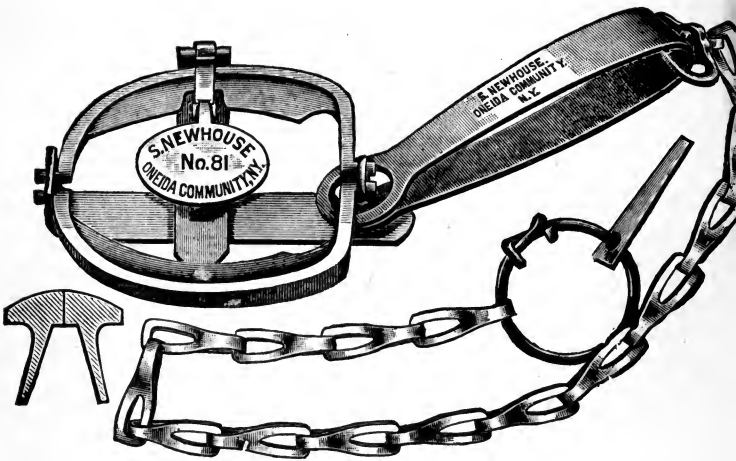
All of these traps are made in sizes from No. 0 to No. 4 and the Newhouse is made in additional sizes and in special styles as described in the following pages.



Spread of Jaws $3\frac{1}{2}$ inches. This, the smallest trap made, is used mostly for catching the gopher, a little animal which is very troublesome to western farmers, and also rats and other vermin. It has a sharp grip and will hold larger game, but should not be overtaxed.



Spread of Jaws, 4 inches. This Trap is used for catching muskrats and other small animals, and sold in greater numbers than any other size. Its use is well understood by professionel trappers and it is the most serviceable size for catchink skunks, weasels, rats and such other animals as visit poultry houses and barns.

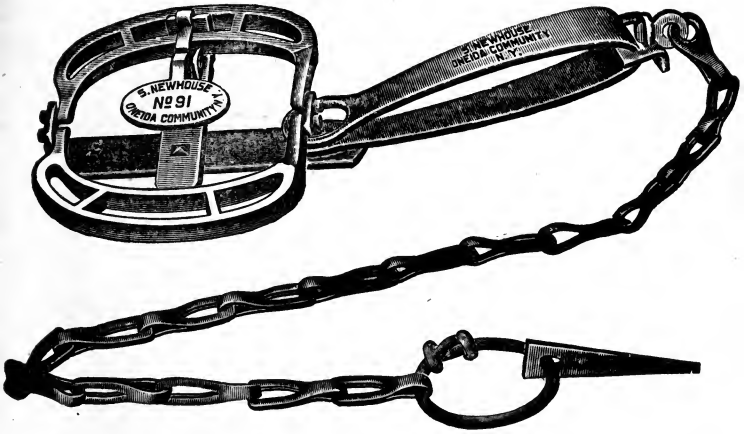


Spread of Jaws, 4 inches. Occasionally animals free themselves from traps by gnawing their legs off just below the trap jaws, where the flesh is numb from pressure. Various forms of traps have been experimented with to obviate this difficulty. The Webbed Jaws shown above have proved very successful in this respect.

Noting the cross-section of the jaws, as illustrated at the left, it is plain the animal can only gnaw off its leg at a point quite a distance below the meeting edges. The flesh above the point of amputation and below the jaws will swell and make it impossible to pull the leg stump out of the trap.

The No. 81 Trap corresponds in size with the regular No. 1 Newhouse.

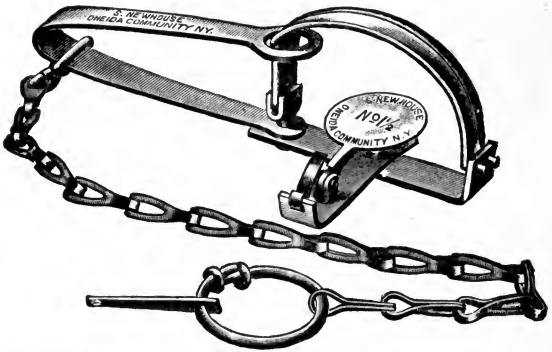
Spread of Jaws—91, 5¼ inches; 91½, 6¼ inches. The double jaws take an easy and firm



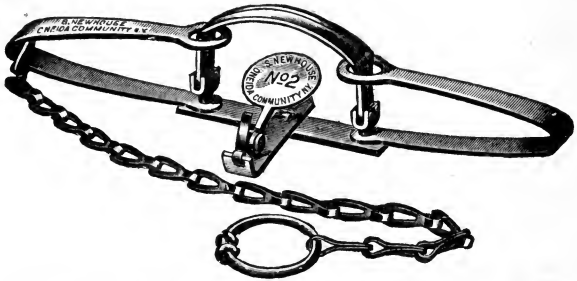
grip so high up on the muskrat that he can not twist out. A skunk cannot gnaw out either.

These traps are especially good for muskrat, mink, skunk and raccoon.

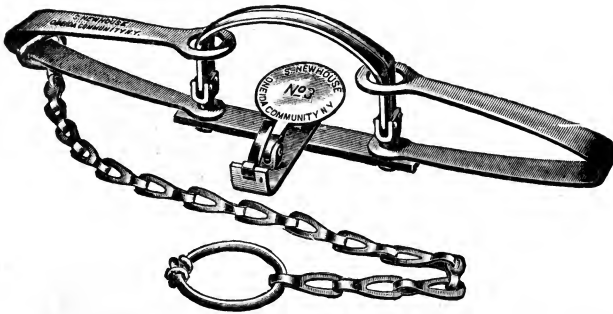
All parts of the No. 91 except the jaws are the same size as the regular No. 1 Newhouse, while the 91½ corresponds to the regular No. 1½.



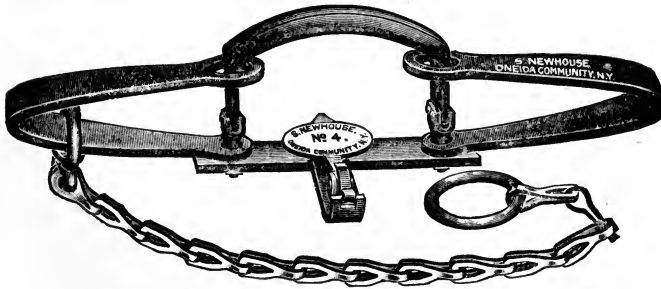
Spread of Jaws $4\frac{7}{8}$ inches. This size is called the Mink Trap. It is, however, suitable for catching the woodchuck, skunk, etc. Professional trappers often use it for catching foxes. It is very convenient in form and is strong and reliable.



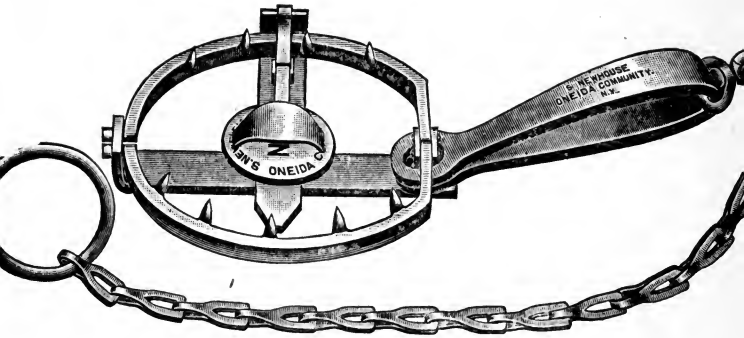
Spread of Jaws $4\frac{7}{8}$ inches. The No. 2 Trap is called the Fox Trap. Its spread of jaws is the same as the No. $1\frac{1}{2}$ but having two springs it is, of course, much stronger.



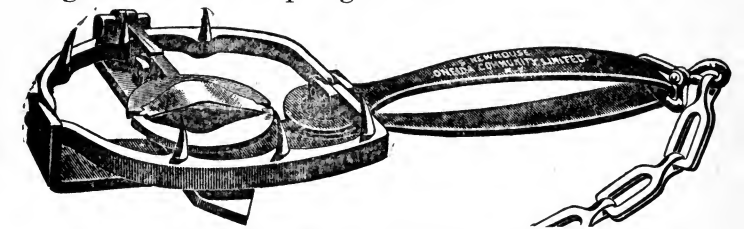
Spread of Jaws $5\frac{1}{2}$ inches. This, the Otter Trap, is very powerful. It will hold almost any game smaller than a bear.



Spread of Jaws $6\frac{1}{2}$ inches. This is the regular form of Beaver Trap. It is longer than the No. 3 Trap, and has one inch greater spread of jaws. It is a favorite with those who trap and hunt for a living in the Northwest and Canada. It is also extensively used for trapping the smaller wolves and coyotes in the western stock raising regions.

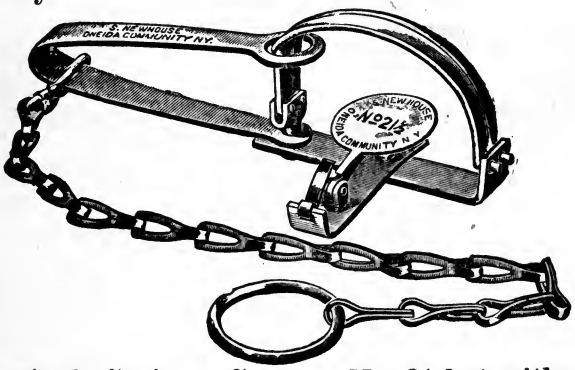


Spread of Jaws, 6½ inches. In some localities the otter grows to an unusual size, with great proportionate strength, so that the manufacturers have been led to produce an especially large and strong pattern. All the parts are heavier than the No. 2½, the spread of jaws greater and the spring stiffer.



Spread of Jaws, 5 inches. The above cut represents a Single Spring Otter Trap. It is used more especially for catching otter on their "slides." For this purpose a thin, raised plate of steel is adjusted to the pan so that when the

trap is set the plate will be a trifle higher than the teeth on the jaws. The spring is very powerful, being the same as used on the No. 4 Newhouse Trap. The raised plate can be readily detached if desired, making the trap one of general utility.



Single Spring. Same as No. 2½ but without Teeth or Raised Plate.

No. 3½ NEWHOUSE TRAP.

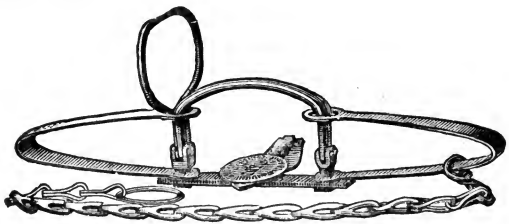
Single Spring. Same as No. 3½ but without teeth or Raised Plate.

Spread of Jaws—No. 2½, 5¼ inches; No. 3½, 6½ inches. These traps are the largest smooth jaw, single spring sizes that are made. Professional trappers will find these especially valuable when on a long trapping line, as they are more compact and easier to secrete than the

large double spring traps. The springs are made extra heavy.

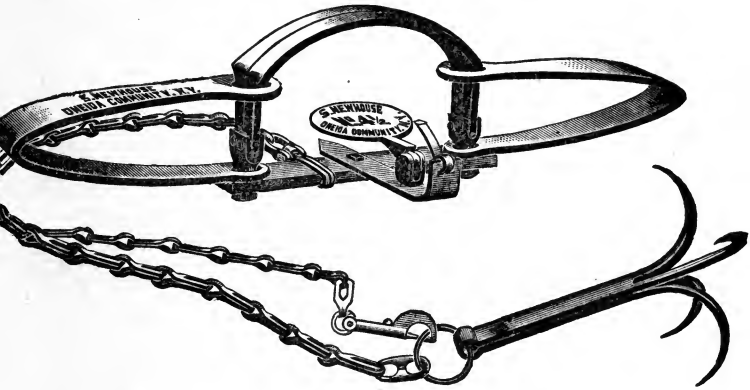
Note.—The 21½ is practically a single spring No. 3 and the 31½ a single spring No. 4.

Spread of Jaws, 6½ inches. This trap is the same in size as the No. 4 Beaver, but has heavier and stiffer springs and offset jaws, which allow the springs to raise higher when the animal's leg is in the trap, and is furnished with teeth sufficiently close to prevent the animal from pulling its foot out.



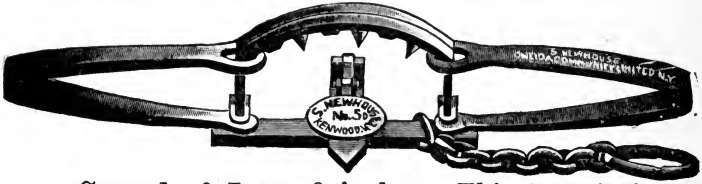
Clutch Detachable—Trap can be used with or without it.

Spread of Jaws, No. 23, 5½ inches; No. 24, 6¼ inches. The inventor of this attachment claims to have had wonderful success with it in taking beaver. The trap should be set with the clutch end farthest from shore. The beaver swims with his fore legs folded back against his body, and when he feels his breast touch the bank he puts them down. The position of the trap can be so calculated that he will put his fore legs in the trap, when the clutch will seize him across the body and hold him securely.

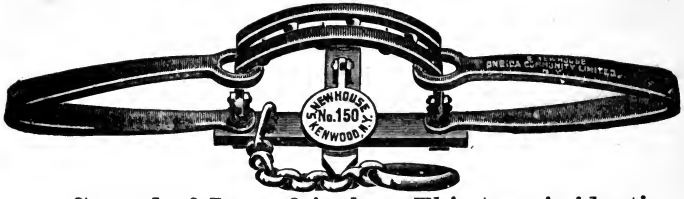


In response to a demand for a new model of the Newhouse Trap especially adapted to catching wolves, the manufacturers have perfected a trap which is numbered 4½ and is called the "Newhouse Wolf Trap."

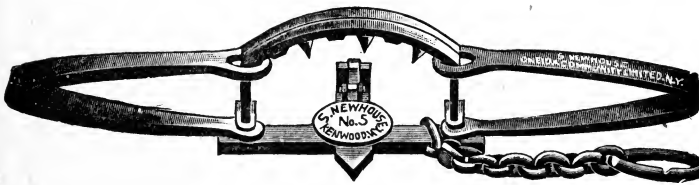
This trap has eight inches spread of jaw, with other parts in proportion, and is provided with a pronged "drag," a heavy snap and an extra heavy steel swivel and chain, five feet long, warranted to hold 2,000 pounds. The trap complete with chain and "drag" weighs about nine pounds.



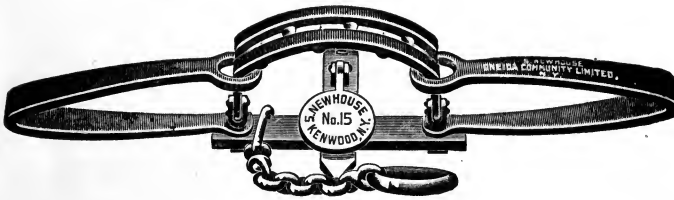
Spread of Jaws, 9 inches. This trap is intended for catching small sized bears. In design it is exactly like the standard No. 5 Bear Trap, only that the parts are all somewhat smaller. Weight, 11¼ pounds each.



Spread of Jaws, 9 inches. This trap is identical with No. 5 excepting that the jaws are offset, making a space five-eighths inch between them. This allows the springs to come up higher when the bear's foot is in the trap, and thus secure a better grip. Also there is less chance of breaking the bones of the foot. Weight, 11¼ pounds each.

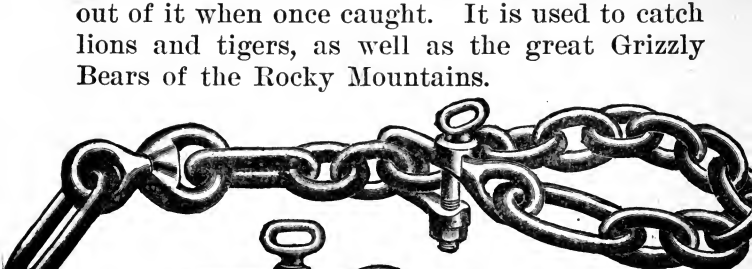


Spread of Jaws, $11\frac{3}{4}$ inches. This trap weighs nineteen pounds. It is used for taking the common black bear and is furnished with a very strong chain.



Spread of Jaws, $11\frac{3}{4}$ inches. To meet the views of certain hunters whose judgment is respected, the manufacturers designed a style of jaw for the No. 5 trap, making an offset of $\frac{3}{4}$ of an inch, so as to allow the springs to come up higher when the bear's leg is in the trap. This gives the spring a better grip. Those wishing this style should specify "No. 15."

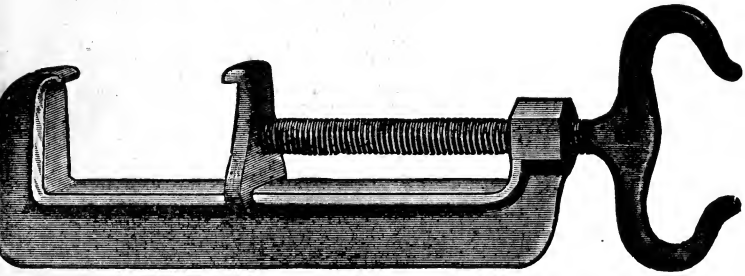
Spread of Jaws, 16 inches. Weight, complete, 42 pounds. This is the strongest trap made. We have never heard of anything getting out of it when once caught. It is used to catch lions and tigers, as well as the great Grizzly Bears of the Rocky Mountains.



This cut illustrates Bear Chain Clevis and Bolt, intended as a substitute for the ring on the end of the trap chain, when desired.

With this clevis a loop can be made around any small log or tree without the trouble of cut-

ting to fit the ring. The chain is made five feet long, suitable for any clog, and the prices of bear traps fitted with it are the same as with the regular short chain and ring.



Every trapper knows how difficult it is to set a large trap alone in the woods, especially in cold weather, when the fingers are stiff, and the difficulty is greatly increased when one has to work in a boat. One of these clamps applied to each spring will by a few turns of the thumb-screws, bend the springs to their places, so that the pan may be adjusted without difficulty. No. 4 Clamp can be used on any trap smaller than No. 4½. No. 5 and 6 are strong clamps, carefully made and especially adapted to setting the large traps Nos. 4½ to 6. They dispense with the inconvenient and dangerous use of levers. With them one can easily set these powerful traps. These clamps are also useful about camp for other purposes.

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XV. Deer Skins, Buckskin.
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XVII. Miscellaneous Skins, Gator, Snake, Birds.
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XXXIII. Prices for Tanning and Other Fur Work.
XXXIV. Appendix.

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